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SOME RAMBLING REMARKS ON GASTRO-ENTEROLOGICAL DIAGNOSIS

A. D. Dunn, M. D., Omaha, Nebraska*

In no department of medical practice have greater changes occurred in recent years than in our conceptions of gastro-intestinal physiology and symptomotology. Fifty years ago the interpretation of gastric symptoms rested on an anatomico-pathological basis with the large catch basins of the various nervous dyspepsias, gastralgias and gastritides to receive all cases for which an anatomic basis was lacking. Physiological knowledge was meager and based largely on the epoch making observations of William Beaumont on the Canadian Voyageur, Alexis St. Martin. In 1865 Kussmaul introduced the stomach tube into the treatment of dilatations of the stomach associated with stagnation of contents. In 1871 Von Leube proposed that the stomach tube be used to obtain stomach contents at fixed intervals after eating various foods in order to study digestion. The differentiation of free from combined hydrochloric acid by Szabo soon followed. In 1879 Von Velden, from Kussmaul's clinic, reported the absence of free hydrochloric acid in cancer and in other depressed nutritional states. Ottomar Rosenbach started the physiological ball rolling; he decried the anatomico-pathological view that must find all disease in morbid anatomy; if we will cure we must diagnose before irreparable injury as revealed by pathological anatomy has occurred; we must recognize early the functio laesa. He introduced the term ventricular insufficiency, following the manner of cardiac nomenclature. An elaborate diagnostic of gastric diseases developed rapidly on assumed changes in function as revealed by changes in the chemistry of the stomach contents and by symptoms which were elevated to the diginity of diseases, some of which plague us in literature of today. Acid, subacid, and

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*Of the University of Nebraska College of Medicine. Abstract of a discussion given at the Third and Seventh Councilor District Meeting at Beatrice September 10, 1925.

anacid gastritis, hyperacidity, hypersecretion, achylia gastrica, gastritis nervosa, anorexia nervosa, bulimia, gastralgia nervosa, atony, hyperaesthesia gastrica and gastromyxorrhoea are common examples. In 1902 Walter B. Cannon made the first observations on gastrointestinal motility in cats by the use of opaque meals and a new era opened in the study of gastro-intestinal diseases. The intensive use of the Roentgen-ray and the study of living pathology by the surgeons often in conjunction with internists of rare clinical acumen such as Graham and Eusterman at the Mayo Clinic have revolutionized gastro-enterological nosology. Meanwhile Pavlow had demonstrated the profound affects of appetite, psychic states and various foods on the stomach secretions of dogs. Recently Alvarez studied the motor function of the gastro-intestinal tract and applied Child's theory of the metabolic gradient; that the tract is a tube with a gradual diminution of metabolism and consequently of irritability from the beginning of the oesophagus to the anus, with fixed areas of hyperirritability such as cardia, pylorus and ileocecal valve, but with each segment of relatively heightened irritability of a lower gradient than the one above. Normally the intestinal contents proceed in an orderly fashion from above downwards. Increase the irritability of any point and the tendency is toward a disturbance of the gradient with such symptoms as a furred tongue, belching, nausea, vomiting and peristaltic pain, the latter due to increased muscular effort from above to overcome muscle contraction due to increased irritability below. e. g. the pain from the pylorospasm in duodenal ulcer. Lastly, our time honored conceptions in regard to the secretion of gastric juice which have formed the very bulwarks of gastroenterological practice have been shattered by Carlson and others. It has been proved that hyperacidity as such, does not exist; that the gastric juice comes from the glands in a fixed concentration — about .45% HCl; that there may be hypersecretion, and thus relatively increased acidity; that acid values uncorrected for dilution are so faulty as to be almost valueless; that accurate correction for dilution is impossible on account of the difficulties of measuring duodenal regurgitation and swallowed saliva. Gorham, Kopeloff, White, Fitz and others have demonstrated the fallacies of curves obtained by the Rehfuss method because of the variations in acidity in different regions of the stomach. Except insofar as the capacity of the gastric mucosa to make hydrochloric acid is shown by "catching delayed secretion," fractional methods of gastric analysis are of little value. Checking by stomach "taps" at a different interval is less troublesome and just as efficient. It has been fully shown that variation in acidity (relative amount of gastric secretion) in health is wide; that the output of gastric secretion is porfoundly affected by psychic factors; that hypersecretion, hypoacidity and anacidity are not diseases, but effects of disease, and do not of themselves necessarily produce symptoms; that from a clinical standpoint the one really significant fact to be learned from the examination of stomach contents is whether the stomach secretes hydrochloric acid or not. Other findings such as blood, lactic acid, bacilli, sarcinae, mucus, tumor fragments, etc., are of minor importance although occasionally of real assistance in formulating a diagnosis.

Out of such drastic changes in our physiological conceptions have come marked changes in methods of diagnosis. The clinician is no longer permitted to adorn his ignorance with a specious terminology. He is asked to give the why and wherefor for the symptoms at hand. Diagnosis has become increasingly difficult and expensive because of time consumed and of the methods of attack necessary in order to obtain accurate data: To wit, a gastric problem cannot be adequately studied without the use of the Roentgen-ray. I shall now try to illuminate what has been said by a sketchy discussion of functional gastric disease with methods of study.

It is a well known fact that the epigastrium is a focal point for all kinds of symptoms for which the causes are extra-gastric. It has been estimated that the disease lies outside the stomach in fully 80% of cases coming to the physician with stomach complaints. The following is a rough working classification of functional gastric complexes:

1. Of psychogenic origin.
2. From fatigue or fag.
3. From disease of the central nervous system—intracranial and intraspinal organic disease—tumor, tabes, mental disease, etc.
4. From spinal disease.
5. Of toxic origin, acute and chronic, local or general infections, uremia, anemias, etc.
6. Of reflex origin (most important).
    a. Appendix.
    b. Gall-bladder.

c. Colon-obstruction, stasis, mucous colitis, etc.
d. Small intestine-duodenal obstruction, Lane's kink, Meckel's, diverticulum, tumors, etc.
e. Kidney-stone, hydronephrosis, pyelonephritis, etc.
f. Pelvic diseases including pregnancy.
g. Pleural and diaphragmatic inflammations.
h. Cardiac referred pain in abdominal angina.

7. Arising from circulatory disturbances.

Psychogenic causes for gastric distress run the entire gamut of human spiritual and mental woes. Grief seeks out the epigastrium and produces there indescribable distress, causes anorexia and nausea, depresses secretion and motility, and brings in its wake a motley crew of symptoms which almost beggar description. The family row, a philandering husband (or what is often even worse, a suspect), a submerged or suppressed love affair, a wayward child, a contentious meal time with emotional discussions of family and other problems at table, slovenly table service, etc., are all potent causes of indigestion. If peristalsis and secretion stop in animals under adverse emotional states how much more must such states effect the more highly organized human animal. Time, change of environment, emotional adjustments or other psychic measures with dietetic common sense are among the necessary measures for relief. Not to be overlooked as a therapeutic measure is the character of the examination, on which the physician rests his diagnosis and his advice.

Physicians, it seems to me, are too little aware of "fag" as a causative factor of digestive disturbances. A vacation, several consecutive nights of sleep obtained by bromides or other hypnotic if necessary. lessened hours of work, complete detachment for a time from the daily environment with its vexations and problems are relief-giving measures—too often temporary if not followed up by substantial changes in the daily life. Fitting the diet and the hours of rest, work and recreation to the needs of the patient is necessary if relief is to be permanent. A word of protest must be entered against the injudicious use of exercise, which is often advised nowadays when what the patient needs is extra hours in bed. It is in this class of case that rest alone will restore secretions and motor power to normal.

The subject of abdominal symptoms arising from lesions of the central nervous system and spine is so hackneyed that I shall merely again call attention to the fact that they are occasionally overlooked and by the best of us.

The toxic sources for gastric symptoms are legion. They make themselves felt chiefly by disturbances in motor function, such as distension, loss of hunger, a sensation of "a load in the stomach," nausea and vomiting. An infection that makes us weak in the legs must sooner or later in the same manner make us weak in the belly. When motor function is down digestion suffers. In chronic disease the gastro-intestinal tract cannot be put at rest except for short periods; it must work else the patient perish. Nice judgment is required to trim the load to the capacity of the digesting machine.

Of prime clinical importance are conditions whose symptoms are reflexly referred to the stomach. So many of them are removable surgically with relatively sure cure if the diagnosis be correct that they demand attention. Painstaking application of all useful methods of investigation, observation and clinical judgment nowhere bring greater rewards. To spot a kidney stone, or a duodenal obstruction or a latent gall-bladder as the cause of an obscure stomach complaint makes one say: "Sufficient unto that day was the goodness thereof." Abdomens scarred in vain mutely attest our carelessness, or our failure to evaluate data correctly, or worse. It is poor practice, in my opinion, to remove a gall-bladder or appendix for stomach symptoms without a thorough examination, Roentgen-ray included. I have seen gall-bladders removed for duodenal obstruction, appendices for renal stones, and abdomens opened for diaphragmatic pleurisies. I am also convinced that routine Wassermann tests in all chronic abdominal cases will pay worth while dividends at least to the patient.

In the diagnosis of gastric disturbances of reflex origin repeated observations are often necessary for the solution of the problem. If the case has been thoroughly worked out and more obvious conditions such as ulcer, carcinoma, obstruction, renal stone, etc., excluded, a tender gall-bladder or appendix, although transitory, will often spell the puzzle. We "ran a young man thru" twice, had him in the hospital under observation for three weeks, and saw him repeatedly during a four month period. He came to the office one day after an especially severe attack of indigestion with a definite tenderness in the gall-bladder region. The removal of a strawberry gall-bladder accomplished a cure. We are frequently forced to return patients to their physicians for observation. Better cooperation is needed. Time with properly directed observations will diagnose most cases. Mistakes might be more frequently avoided did we not feel that we have to decide and do something now, and thus allow ourselves to be lured into acting on insufficient evidence. The patient should be taught that his best interests will be served by waiting until the evidence is sufficiently complete to at least take the diagnosis out of the race-track class of gambling.

What do we do in cases presenting themselves with gastro-intestinal symptoms for diagnosis?*

1. We always take a complete history, formulating our leading questions in so far as possible in a manner that will enable us to translate the patient's answers into terms of disturbed function, e. g. what relationship does eating bear to the pain with subsidiary explanatory questioning.

2. We always make a complete physical examination with the trunk stripped; examination of the head, pupils, teeth, tonsils, lymph glands, thyroid, heart, lungs, tendon reflexes, kidneys, spleen, colon, appendix and gall-bladder with rectal or vaginal examination in at least 80% of cases. Blood pressure, pulse and temperature are taken. A urinalysis and at least a hemoglobin estimate leucocyte count, and Wassermann are always made.

3. If the condition is not acute and the diagnosis uncertain, stomach contents and stools are examined, the chest screened and a roentgenological examination of the gastro-intestinal tract made. To meet special indications urological examination, examinations of the stools for intestinal parasites, of the duodenal contents, of the spine and of the nervous system and spinal fluid are made.

4. If the above method of study fails or the history has not developed a sufficient reason for the complaint in the emotional life of the patient or in his habits of diet, work, play or rest, one must fall back on repeated observations with checking of certain phases of the examination as indications may arise. Continued observation under tentative though harmless therapy will usually in time bring a satisfactory solution of the most refractory gastro-enterological problem.

630 Bankers Reserve Life Building.

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*It is obvious that the type of examination described should not be instituted for every transient bellyache. But every individual who has chronic intra-abdominal trouble which persists in spite of simple remedial agents has a right to a thorough study of his case.

A CONSIDERATION OF THE RELATION OF THE PSYCHIC AND SOMATIC*

Benj. F. Bailey, M. D., Lincoln, Nebr.

I have been very deeply impressed and increasingly so through a number of years that the profession at large and the public generally are not giving sufficient attention to the study of so-called mental diseases. The tendency has been to look upon sufferers from these maladies as something apart, to be cared for, to be protected and to protect from, but not as subjects for careful psychic and somatic study and investigation.

To go back a bit, from the present day history, Virchow and Ehrlich have been supporters of the theory that every mental disorder has a definite physical pathology and that evidences of this pathology must precede the development of mental symptoms, while Freud, Adler, Jelliffe and others consider that inorganic mental conditions exist without bodily or somatic origin. Those who favor Freud and others who consider the origin of mental symptoms as psychic alone vary somewhat in their basic theory. Freud sees in every case a possible interpretation of the sexual urge. Others are willing to base this origin not on Freud's theory but more upon the theory of the thought that the fundamental urge in human life is self preservation and that self preservation must develop what we know as fear and that fear recognized or unrecognized, is in itself the active force in the development of the psychoneurosis.

Another group has clung very firmly to the opinion that all psychoneuroses are the result of heredity. Freud has developed a wonderful notoriety in his effort to find a common explanation for all psychic conditions and has had many followers but it seems to me that the time has come for us to analyze very carefully the actual facts existing which may be allied to psychoneurosis and see whether or not it is possible or probable for one cause to be absolute in the production of these conditions which we discuss. As a plain statement of fact we know the most serious shocks may be endured by many a person and never develop a so-called psychoneurosis. We know that the race suffers from all forms of physical and pathological variations without the development of a psychoneurosis. We know that on the other hand, where it has been impossible for even a Freudian by psycho-analysis to find or imagine a previous and submerged psychic shock impression, a physical shock, as for instance an operation; a physical pathology, as for instance, diabetes or a metabolic toxemia, has resulted in a psychoneurosis which has only been relieved with the relief of the physical condition.

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*Read before Lancaster County Medical Society.

We may also state, I think, without fear of contradiction, that many a case of psychic traumatism or shock from a love affair, from a grief, from mortification or from fear, has developed a psychoneurosis. The psychoneurosis is followed by variable but definite metabolic changes as evidenced by careful laboratory and clinical examinations, and the development of these physical changes react again as an aggravation of the psychoneurosis, thus constituting a really vicious circle.

With these facts as premises, I assume that there is no single cause for the psychoneurosis, that the psychic cannot be separated from the somatic and that inheritance without question has its bearing, and that the cry of the present time should be for the study in every single mental patient of the psychic, the physical and incidentally heredity. A faulty inheritance may be protected against but can hardly be entirely changed, consequently the study of inheritance is more as a sidelight, as a help in prognosis and as a protection perhaps to others in the same family, than as an actual factor in the treatment of the individual case.

Let us consider something of what the inheritance may be and how it may affect one. I think a recent writer was right when he said, "It is the sensitivity and the delicacy of nervous organizations that make the system susceptible to injurious stimulation; unfavorable conditions are more apt to affect a highly complex mechanism than a roughly made instrument." And it is only reasonable to suppose that in most cases one who inherits an unduly sensitive high tension or even too low tension nervous system will also inherit a physical system that is as little able to bear the shocks of sudden violent stimuli as is the nervous system that dominates to such an extent his physical body. Some of the best authorities seem to recognize at the present time that the adrenals are the powers behind the throne that impel or inhibit the domination of the central nervous system. It is also recognized that one of the great basic necessities before the brain as a pacemaker of the physical functions, ever subject to call, can properly function, is the perfect oxidation of the blood. The blood must be alkaline or it cannot carry oxygen. The overstimulated functions of a body produce acid by-products and the continual tendency is for the blood to become less alkaline and the nearer it comes to a neutral or mild acid reaction the less possible is it for the system to be equal to the demands made upon it. That the blood may remain alkaline and that perfect oxidation may go on, depends largely upon the liver, and kidneys, and the lungs, as most of these by-products of acid trend are broken down by the liver into eliminable compounds which are eliminated by the kidneys, the gaseous products by the lungs. We do not know when the functional ends and the organic begins but we do know that shock after shock upon a nervous system which reacts with shock upon shock upon the physical functions may react as does the slight functional error in the delicately attuned mechanical machine, not seeming at first to make much difference in the efficiency of its action, but to end in perhaps a failure to function at all.

Experiments have demonstrated that as the adrenal nerve supply is destroyed or desensitized by opiates there is less hope that any stimulus applied will control or stimulate the energy of the whole system that is so evident when the adrenals are active. It has been pretty thoroughly demonstrated that the adrenal without the thyroid fails to make a perfect and well sustained energy development. I think the careful student is coming to realize that probably the brain, the adrenals and the thyroid control the automatic functioning of the entire human system. If either the adrenals or thyroid are crippled the dispatcher's office is inefficient and though both are correct while the organs and other glands with which they cooperate and over which they dominate are imperfect, there still will be an imperfect result of any orders that may go out from the dominant power.

Now we will assume that inheritance has

furnished a sensitive nervous system, one subject to shock and not reactionary enough to cast out fear, one upon which an environment may play as upon the delicate strings of a musical instrument, but in which the string was imperfect in the beginning or has deteriorated from time. The result is not a harmony but that of an irritant that produces more and more a tremor of the psyche, while we reap, in the functions of the physical organs those same disturbances which have been told to us by Cannon, Crile, and many other writers. Fear, anger, grief, any of the unpleasant emotions, check a perfect functioning of the digestive organs which must be followed by a disturbance of all metabolic processes and every change of metabolism from the normal may mean a greater or a lesser change in the functions of the vegetative organs over a considerable time. Such a change of function must be accompanied by a more or less abnormal chemical condition of the system and such change must react upon the nutrition and perfect condition of the most sensitive part of the whole human system, namely of the central nervous system. I do not think anyone will gainsay the statements of this paper up to this time—that by inheritance we may have a sensitive nervous system or physical system, that a psychic traumatism may affect such sensitive nervous system and through it change the functions of the physical with a result that a psychoneurosis is developed with functional errors in the metabolic organs of the body, which though functional, at first, may always have the possibility of becoming organic. The only way to correct such a condition is by the very careful study of the physical errors which must be corrected and which by their correction may give support to the brain or central nervous system, thus allowing it by more perfect nourishment and consideration to resume a normal function. Just to strengthen the argument remember that Darwin early said, "The manner in which the secretions of the alimentary canal and of certain glands, as the liver, kidneys or mammae, are affected by strong emotions, is a good instance of the direct action of the sensorium upon the organs". Claude Bernard demonstrated the least excitement of sensory nerves reacts through the pneumogastric nerves upon the heart. Bidder, Schmidt, and Richet observed that the sight of food causes secretion of gastric juice. Pavloff showed that the central nervous system inhibits the glandular activity of the stomach through the vagi nerves. He demonstrated two moments in the process of secretion, the psychic moment, the perception of food and the chemical moment and Pavloff claims the psychic moment the most important. Pavloff says, "Mental life, however complex, can be studied successfully by the reactions of glandular secretions". As the whistle associated with the sight of food to the dog, caused the beginning of the secretion of the gastric juice, so the associations of some harmless object that has been in the past associated with fear or with anger may act through the subconscious mind to develop anew a psychic traumatism with all that it means to mind and to body. Such associations and reactions which may last through the life time of a sensitive temperament and which has been the basis of the development of the Freud and other theories must be looked upon as a weakness or imperfection of the development of a whole human system and not alone the subconscious. Had the physical system been perfectly balanced and able to function perfectly without doubt the psychic would have been better supported and less impressed by the environment of fear or shock.

Fraser says men are undoubtedly more influenced by what they fear than by what they love. In brief, all the human race and probably all the animal races suffer from a greater or less extent of fear and in the human race which we are considering, the question of fear which is another word for anxiety, for apprehension, for desire for self-preservation. Fear is the greatest hobbling force that we have. The removal of fear by a wholesome outlook upon and interpretation of the plans of life as drawn by nature and that must be lived whether we will or not, and the development of a firm and well-balanced support of the mind may banish psychic shock. In other words, the treatment through reason of the psychic and through science of the somatic, offers the combined help that covers every theory and offers every possibility of an advance in the power of science and ability to accomplish. Even religion is limited in its possibilities. The religion of fear may help some and we may be spurred to action by a fear from which we believe our own power can help to escape, while to others the religion upon which they can lean and to which they can reach up for help and have what they believe to be a safe leading gives to them an assurance that takes them further and further from any possible psychic traumatism. But again, all cases of functional mental disease do not come from apprehension, from fear, from traumatic shock, but come as the distorted picture comes from the injured film where the functional organs of the body are disturbed and where the nervous system is not properly nourished but the neurons are bathed in poisonous fluids. Instance a case of delirium accompanied by fever in which we have no question that the temporarily disturbed neurons are the result of the temporarily disturbed nutritive fluids by which they are served. But we also have times when without fever we have similar mental disturbances due to functional physical changes. It would be surprising to those who are not handling these cases continually, to find the number of cases in which a hyper-acidity seems to have directed the situation and recovery follows correction, the number of cases in which an insufficiency of the kidneys is at least the barometer which marks the progress of a case for with the relief psychic balance is restored.

A hypothyroidism or a hyperthyroidism may precede the psychic change and recently I have come to feel more and more that a hypo functioning of the supra-renals is in many cases a very large factor in the failure of the psychic. Further recent experiences have led me to believe that the adrenals may be used as a balance to the thyroid secretions. Though they are supposed to stimulate the action of the thyroid they also seem to modify it and in a number of cases in the last year I have seen the administration of the supra-renal extract seem to correct entirely the hyperthyroid condition. I was fortunate enough to see one case with a history of tonsillar infection, with a great financial worry, resulting in an exopthalmic ensemble with a very marked emaciation, excessive tremor, pulse 160, and a condition of emaciation and weakness which rendered operation inadvisable. Under supra-renal extract this patient has made a complete recovery. This is not really digressing from the question for it shows the association of anxiety, of infection, or physical ailment and that the correction of neither one of them could have been possible or probable without attention to all.

Two or three years ago I read an article before this Society, speaking of the effects of vaccines upon certain mental conditions. I did not attempt then and I shall not now, to give you the reason further than to say that it is quite probable in many of these cases there were foci of chronic infection even though shown by but a slightly increased leucocytic count. It was quite possible, too, that the use of certain vaccines even where there was not a positive leucocytosis or located focal infection, might have acted as a stimulant arousing the defenses and hence the functions of the body. Gordon has recently given some things to the public which shows plainly that the correction of the physical often controls the mental. He says, "The intercurrent somatic disturbances which have favorably influenced pre-existing psychic states, are typhoid fever, malaria, erysipilas, variola, scarlatina, cholera, pneumonia, pleurisy, acute inflammatory rheumatism, hemorrhage, gastric disorders of an acute character and finally suppurative conditions". He says, "As to the degree of improvement in the psychosis various accounts have been recorded ranging from some amelioration or from remission to complete recovery and this was the case not only in the acute psychoses and in mental disorders of recent date but also in chronic psychoses of long or very long standing, such as dementia praecox, or in paranoid states or in cases in which unfavorable prognosis was admitted". He quotes, "A rapid relief of a manic phase of the manic depressive upon the development of a bronchial pneumonia". In fact, we have records of relief in numbers of cases upon an attack of pneumonia. He calls attention to the fact that in uremia there is clouding of consciousness, often disorientation, depression or euphoria and hallucinations, dependent upon a toxicity of the organism. He says the same phenomena are observed in chronic diabetes, gout and chronic rheumatism. He says it is quite evident that "Some morbid mental manifestations and even some fully developed psychoses are initiated by extrinsic and intrinsic toxic agents and consequently their pathogenesis is of a chemical character". He points out that the formation of anti-toxic substances in the organism is a most important feature in the process of any disease of infectious character. In the case of psychoses we have seen so far that at least some of them have a chemical pathogenesis. When a diseased process of somatic origin intervenes in the course of a psychic malady antitoxic substances of one react at times upon a toxic material of the other. Since the inter-current affection reacts favorably upon the course of the psychosis the forces are naturally antagonistic to each other". He also says, "A study of the metabolism in a psychosis before an inter-current disease makes its invasion and the study of the metabolism as the intervening process occurs may elicit some facts of enormous importance particularly with regard to the therapeutics of such conditions." It is interesting as persons make observations in their daily work to find even though it be a long time effort, others are making observations that tend to confirm theirs, even though neither party has furnished a definite and scientific explanation of the phenomena which they seem to observe.

In resume — That inheritance modifies all the possibilities of life of the individual is without question; that it controls them entirely as against shock, accident and infection is not true; that any change as a shock or traumatism to a sensitive nervous system may induce a psychoneurosis and a psychoneurosis cannot be produced without reacting upon the physical body, and in the relief of the same the physical body as well as the psychic must be considered.

Second—The principal causes of physical ailment must be recognized as traumatism, infection, and failures in nutrition, and I am making the statement that as one of the results of any of these causes that effect the functions of the body there may be developed a psychoneurosis; for anything that interferes with the functions of the body in such a way as to positively change the reaction or the elemental contents of the nutritive fluids which supply the central nervous system may result in a psychoneurosis.

Third—It is up to the medical profession to take on their shoulders the consideration of all psychoneuroses as a part of the errors of functions of the body and involving the careful study of, and diagnosis of the condition, so far as possible, of every organ of the body. In this way only will it be possible to offer to the psychic the physical support which is necessary in returning to as nearly as possible its own normal balance. In attending to the physical, psychic consideration is equally necessary but will you tell me in what office of the physician or surgeon attention to the psychic is not necessary? Had we given better attention to the psychic as we ought, Christian Science would never have developed to the extent that it has and if we give attention to this and also to the physical we will prevent the formation or rather the development of many of faddish theories that may sweep across the country, The alienist's position in the medical profession should be one of an able diagnostician who should realize the necessity of calling to his help as he may find it indicated in the consideration of his cases, perhaps more than any other man, the surgeon, the laboratory worker, the eye, ear, nose and throat specialist, and in fact everyone who works within the boundaries of our profession.

It is broad, ladies and gentlemen, so broad that it almost engenders that fear I have spoken of, but so grand in its possibilities and results if we realize that we cannot and must not try to separate entirely the psychic and the somatic and if we recognize as causes not alone the sexual urge, the fear and traumatism, but infection and malnutrition,—if, I say, we recognize these points the field is so broad as to be a real inspiration.

SOME CAUSES OF DEATH IN OPERATIONS ON THE GALLBLADDER AND BILE TRACTS. POST MORTEM REPORTS*.

J. Stanley Welch, M. D., F. A. C. S., Lincoln, Nebr.

This Dry Clinic has not for its purposes any attempt at analysis of gall bladder surgery in general. I only wish to review in abstract form, a few case histories with post mortem findings in some of these, and offer a few suggestions which I think the findings warrant.

1. The greater seriousness of cholecystectomy and bile duct surgery versus cholecystostomy, needs little mention. Many a drainage operation has been done where removal seemed better, but the surgeon lacked the courage of his convictions because of unfavorable past experiences. With local anaesthesia or gas, or both, a simple drainage operation has almost negligible mortality in

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any class of patients, regardless of age or complications. It is not so with gall bladder removal.

I have had what might be called a surprise mortality in the moderately sick and a surprise recovery in the acutely sick. The evidence in the first case, not acutely ill, points to an inactive existing virulent infection, which suddenly becomes fatally active with operation, because apparently the patient had no established immunity. In the next case which was acutely ill with the gall bladder as the storm center, there was a "surprise recovery" probably because of an established immunity.

CASE NO. 1

Miss N. No. A-928. History taken April 12, 1921.

Female. Age 49. Single. Student and teacher by occupation.

Family history negative.

Personal history: Usual habits. Menopause two years ago.

Previous illness: Dyspepsia for twenty years. Hives many times.

Present trouble: Attacks of epigastric colic in 1915, 1917, 1920 and at present. Previous attacks came suddenly and required morphine to relieve. Nearly normal next day. Present attack not like others in that not so severe, requiring no morphine. Began in morning with belching and pain. Relieved by eating, to recur in three or four hours. Again gets food and alkali relief.

Physical examination: The remarkable symptoms are:

(a) Slight tenderness over gallbladder area. Also same over right iliac fossa. Tumor mass in pelvis attached to right fundus. firm, movable, tender and extends out into right iliac fossa.

(b) Gastric analysis: Bile O; mucous 1 plus; blood 1 plus minus; acidity—Hcl. 33, total 52, combined 25.

(c) X-ray—Summary: No gall bladder shadow. Constant duodenal deformity and almost constant pyloric spasm. Appendix visualized and constantly deformed at base. X-ray diagnosis—duodenal ulcer; pathologic appendix; motor reflex pylorospasm; gall bladder disease.

Operating room record: Cholecystitis and lithiasis multiple. Pericholecystitis with attached omentum. Chronic appendicitis. Multiple fibromata of uterus. Ecchymotic area on anterior surface of duodenum. This was not indurated and was probably not ulcer.

Operation: Cholecystectomy; appendectomy; division of adhesions. Ether anesthesia. Time of operation, 1 hour and 7 minutes.

Postoperative course: Returned to room with pulse 90, (axillary) temperature 97.4. Eleven hours later pulse 128, (axillary) temperature 100.4. Catheterized 30 oz. urine. Twenty-four hours after operation pulse 164, axillary temperature 105, respirations 50. Patient irrational. There were muscle twitchings and spasms. Thirty-two hours after operation, she died.

Laboratory findings, six or eight hours before death: Urine—specific gravity 1024, alkaline, albumin O, sugar O, acetone O, few hyaline casts. Blood—white blood cells 5,600, polys 56%. No blood culture recorded.

Autopsy findings in abstract form: External markings: Some abdominal distension. Recent right upper quadrant surgical wound.

Peritoneal cavity: Healthy appearance. No fluid. Usual findings.

Pleural cavities: Both obliterated by fibrous adhesions. No fluid increase.

Heart: Nothing remarkable.

Lungs: Lower left lobe is increased in size, dark red in color and scattered throughout its substance are a large number of firm nodules. Where these lie beneath the pleura there is a deep purplish red discoloration over them. The cut surface shows that each nodule is deep red in color, raised and dry. The right lung shows lower lobe and lower half of upper lobe to be involved as lower left is.

Stomach and Intestines: The lining of the stomach shows a number of areas in which there are pin point hemorrhages in the mucosa. On the upper aspect of the duodenum about three-fourths of an inch from the pyloric vein there is a light colored spot about one centimeter in diameter with hemorrhagic stippling. Upon opening the duodenum it was found that this spot was the floor of an "U" shaped ulcer about one and one-half centimeters long by eight millimeters wide. About 2½ centimeters farther down the gut and on the posterior wall there is a round ulcer a little less than a centimeter in diameter. Neither of these show much induration. Otherwise the intestines are normal.

Liver: Appears to be somewhat smaller than usual. It is yellowish brown in color and soft in consistency. The cut surface is of a uniform yellowish brown color and there are only a few small spots in which the normal liver markings can be made out. The gall bladder has been recently removed. The stump of the cystic duct is securely tied by a ligature. There has been no leakage. The common duct is patient and normal throughout. Spleen and pancreas negative.

Pelvic organs: Multiple fibromata.

Anatomical findings: Hemorrhagic bronchial pneumonia bilateral. Chronic fibrous pleurisy. Multiple ulcers of the duodenum. Fatty degeneration of the liver. Parenchymatous degeneration of the kidneys.

Probable cause of death: Embolic bronchial pneumonia bilateral (apparently due to a shower of hemolytic streptococcus by way of the blood stream).

CASE NO. 2

Mrs. K. No. A-12991. History of January 21, 1925.

Female. Age 50. Married. Housewife.

Family history: Negative.

Personal history: Four pregnancies. Two normal children, two abortions. Menses gradually increased in profuseness in last few years until seven months ago when it ceased after hysterectomy for fibroids, appendectomy and perineorrhaphy.

Previous illnesses: Had first gallbladder colic 21 years ago with a pregnancy. Since then patient has had chronic upper abdominal trouble with morning vomiting, belching and indigestion. In 1918 she had "flu" severely, with facial paralysis lasting six years.

Present trouble: For four months many upper right abdominal colics requiring morphine. For eight days prior to operation she had the most intense attack of all, with nausea and vomiting of bile, chills, fever and sweats. Four days ago she passed gall stones in bowel movements. During this illness a large tender tumor has formed in her upper right abdomen. She is certain it is decreasing in size.

Physical examination: Patient looks ill. Numerous infected teeth.

Thorax: Negative except heart dullness slightly increased and there is a definite irregularity.

Abdomen: Above described tumor distinctly felt. It is rounded, smooth, moves with respiration and extremely tender. More distinct to right of navel and anteriorally than behind on in flank.

Laboratory findings: Urine, specific gravity 1030, albumin trace. White blood cells 14,000.

X-ray findings: "Small stomach ulcer near pylorus on lesser curvature. No evidence of gall stones". (Dr. C. Kail).

Operating room record: Chronic cholecystitis and cholelethiasis and pericholecystitis. No ulcer of stomach or duodenum. Cholecystectomy. Mercurochrome in field of operation.

Right flank drain to foramen of Winslow.

Postoperative course: Smooth convalescence. Highest pulse 112. Highest temperature 100.6. Wounds healed kindly and patient left hospital in two weeks.

In the first case an overwhelming blood stream infection seems to have occurred with death in about thirty-five hours. We suggest that this surprise mortality might have been prevented by (a) creating pre-operatively some degree of immunity with foreign proteids like mixed casein, or (b) the use of antiseptics intravenously at operative time, such as mercurochrome. No complications discovered at autopsy such as the duodenal ulcers, the fibromata or possibly undetected myocarditis, could possibly have accounted for death alone or in any great part.

In the second case, the so-called surprise recovery case was desperately ill. Cardiac irregularity and kidney findings were even present in some degree and yet she lived. We believe the immunity here established has an essential life saving importance. Other case records are available showing these same features.

Some of these patients were in the house at the same time. Therefore, we do not think it was faulty technique. We were not, nor were other surgeons in the house, having infections in other cases.

II. Bile duct disease with obstruction, whether from stones, pancreatic disease or cancer in the neighborhood, offers another interesting type of cases.

Stones and cancer: Aside from the usual differential diagnosis symptoms in obstruction by stones in the common duct, such as colic, intermittant jaundice, etc., there are certain other features which our cases present and which I wish only to mention here because of limited time.

(1) We think prolonged obstruction due to stones is more often associated with serious infection after operation than is obstruction due to cancer. Case No. III, Mr. J., No. A-7208 and Case No. IV, Mr. N., No. A-13341, illustrate this. Case No. VI., Dr. B., No. A-2748 had both and fever prevailed.

(2) Jaundice by stone long continued and successfully relieved is apt to show a more severe degree of liver and pancreatic degeneration than where obstruction due to cancer is relieved by anastomosis operation. Case No. V, Mrs. J., No. A-11607 versus Case No. IV, Mr. N., No. A-13341.

Does the sudden relief of back pressure on bile and pancreatic ducts account for disfunction of these respective organs as does similar relief of back pressure on the kidney, when an obstructing prostate is removed? We cannot answer this. It is food for thought. In any event it seems a necessary evil if operation relief is to be tried.

In one case of cancer of the pancreas, No. VI, Dr. B., No. A-2748, we anastomosed the gall bladder to the hepatic colon when adhesions prevented using the duodenum, and relief for over a year followed. Even then, death seemed not to result from any operation complication but from the usual causes in cancer of the pancreas. In No. IV, with probably cancer of head of pancreas, we anastomosed the galbladder to the duodenum with prompt, uneventful immediate results. Three months only have elapsed since this operation.

CASE NO. 3

Mrs. J., No. A-11607, history taken March 25, 1925.

Female. Age 49. Married. Housewife.

Family history: Negative.

Personal history: Active, hardworking woman. One pregnancy O. K. Menses profuse during last year. Has lost weight.

Present trouble: For twelve years has had typical gall-bladder colic attacks. Frequency and severity is increasing. In bed three weeks a few months ago. Now for five weeks constantly ill with intense jaundice, usual colic, a little nausea and vomiting, with loss of weight and strength. Seven days ago she had onset of more intense pain below left costal arch in abdomen than she ever had in gall-bladder area. Temperature 99.5, pulse 120. It is still painful and tender to pressure. No other remarkable complaints except intense itching of skin.

Physical examination: Temperature 99.5. Pulse 120. Respiration 22. Blood pressure 132/78. Coagulation time 4½ minutes. After three injections of calcium chloride intravenously, it was 3½ minutes. Urinalysis showed bile and albumin, hyaline and granular casts. Examination of feces showed no bile or fat.

The remarkable findings were intense jaundice of skin and sclera. Extreme tenderness in left upper abdominal quadrant, with rigidity and dullness continuing down from splenic dullness toward the navel and flank. Gall-bladder area very tender and rigid, and indefinite and uncertain palpatory evidences. No distended veins. Uterus moderately large. No bleeding.

Opinion given: Obstructive jaundice. Could be cancer because of failing health for ten months. Intense colics point to stones even if complicating cancer. Some complication in splenic area. Bleeding from spleen was predicted because of intense jaundice and increased dullness, although coagulation time was good. Pancreatitis was suggested by one consultant.

Operating Room Record shows five stones in common duct, largest at ampula of Vater. Stones in gall-bladder. No cancer evidences. Subacute peritonitis in tail of pancreas region. Operation: Cholecystostomy. Removal of stones through duodenum. Right flank belly drain.

Postoperative course: Returned to her bed after a two hour operation in good condition. Pulse 120, respiration 24. Pulse soon dropped to 110 and in four hours was 86, temperature 98, respiration 24. In twenty-four hours pulse 116, temperature 102.8, respiration 22. In forty-eight hours pulse 108, temperature 103.8, respiration 30. Urine abundant. Bowel movement free and full of bile. Blood culture at this time remained sterile. White blood cells 16,400. Gall-bladder draining freely. At this time 25 c.c. of 1% mercurochrome was given. A marked improvement followed for 48 hours with pulse, temperature and respiration near normal. Then mental depression with beginning hallucination and ideas of persecution came. There was muscular twitching. No pain. Blood urea 58.8 m. g. per 100 c.c. Uric acid 1.3. Creatinin 2.3. Sugar .27%. Respiration rate increased to 36, later 40 and as high as 68 plus at end of the seventh day when she died. Pulse and temperature remained low until a few hours before death. Absorption of fluids and elimination by bowel, kidney and liver remained excellent. The wound had healed and dermal sutures were out. Jaundice decreased very materially.

Autopsy findings: (Abstracted).

External markings: Not remarkable.

Peritoneal cavity: Some ecchymosis in surgical field, otherwise not remarkable. Pleural and pericardial cavities: Normal.

Lungs: Small areas described in both lower lobes, correspond to those of hypostatic pneumonia.

Heart and vessels: Not remarkable.

Stomach and intestines: The stomach shows no lesions. The operative wound in the anterior wall of the duodenum is healed. The incision in the posterior wall over the lower end of the common duct is open and bile exudes. The common duct is patent upward and downward from this point. The intestines below this point show no lesions. The foramen of Winslow is patent and the lesser normal.

Spleen: The spleen is surrounded by some soft adhesions. It is moderately enlarged and soft. The cut surface is deep red, showing the follicles plainly. There is no increase in connective tissue.

Pancreas: The head of the pancreas is normal in feeling, in fact small. It does feel a little hard. The tail is large, red and the fat about it is filled with small white masses that look like soap. The cut surface in the head region shows decrease in amount of glandular tissue with hardness and increase in connective tissue. That of the tail is red and injected. There seems to be no increase in amount of glandular tissue, but some swelling and probably infiltration.

Liver: About normal size and weight, but very soft and flabby. The centers of the lobules are small, deep brown to green. The peripheries are distinct but small. The gallbladder is small, thick walled, with drainage opening in the tip. The lining seems necrotic. No stones are found.

Kidneys: Not remarkable for acute illness.

Uterus: Fibromata present.

Head: Not autopsied.

Anatomical lesions: Jaundice. Hypostatic pneumonia. Parenchymatous degeneration of the liver. Chronic and subacute pancreatitis. Early contracted kidney. Multiple fibromata of the uterus. Recent operative wounds in abdominal wall, duodenum, gallbladder and common duct.

Probable cause of death: Acute parenchymatous degeneration of the liver and subacute and chronic pancreatitis.

DISCUSSION

CLYDE ROEDER, M. D., Omaha: I did not hear all the Doctor's paper, but I should like to ask if he is changing his attitude in regard to the operation on gall-bladder disease? I think the marked death rate occurring in gall-bladder operations, even in the best of hands, indicates it is a very serious operation. I wish he would mention that fact in his discussion.

DR. WELCH, (closing): Dr. Roeder's question was apropos. I think that is the biggest point in the paper and in discussion. And yet if we do cholecystotomies, we are going to continue to have sick patients. One patient had had a drainage operation, and her trouble went on. In many of those patients towards the close of life, I think drainage should be the operation.

We have no doubt the mortality of the removal cases is so great today it is a serious question, and many a surgeon who thinks the gall-bladder should come out, resorts to a drainage operation because he has not the courage of his conviction, based upon previous experience.

It was with the hope of doing something to prevent that mortality that I offered these suggestions. What we are trying to do at present is to take a piece of the gall-bladder and some bile and culture them and see if the gall-bladder contains bacteria. It frequently shows bacteria when the bile itself contains none. Therefore, if we can immunize that patient against the organism which is there, and against which the patient does not develop resistance, I think we would stop the mortality in some cases. Further, it is with the idea of catching the bacteria as it comes into the blood stream from the gall-bladder that I suggest the injection of mercurochrome.

Dr. Roeder might have asked about the mortality in bile-duct obstruction. When you open a bile duct, either through the duodenum or otherwise, you expect to get some reaction. Yet we have thought maybe the relief after five weeks of jaundice did something to the organs back of it, just as when you take a prostate out. The patient dies. They don't secrete. Maybe the sudden relief of that back pressure has something to do with the mortality. I think these stone cases frequently carry with them infection, whereas cancer causing infection does not carry the infection so often; so when we relieve by way of anastomosis, we frequently do not get the reaction afterward that we do when relieving stone obstructions.

THREE AND ONE-HALF YEARS EXPERIENCE WITH HIGH VOLTAGE X-RAY THERAPY*

A. F. Tyler, B. Sc., M. D., F. A. C. P., Omaha, Nebraska.

That high voltage x-ray therapy is the greatest known palliative agent in the treatment of inoperable malignant tumors is now generally admitted by those who have observed its effects. When properly applied there is no mortality from the treatment and few complications. The same degree of skill on the part of the roentgenologist is required to select cases suitable for high voltage x-ray therapy as is required on the part of the surgeon to select cases suitable for surgical treatment. To know when not to use high voltage x-ray therapy is just as important as to know when to use it. In order that this knowledge may be used for the good of the patient it is important that the roentgenologist exercise his medical knowledge and diagnostic acumen rather than acting only as a technical therapist.

ROENTGENOLOGIST—A CLINICIAN

I mean to say that the roentgenologist should obtain a careful history and make a complete physical examination as well as employ all helpful laboratory tests in each case before beginning treatment. By so doing he employs his medical knowledge to best advantage of the patient and himself. He is better able to judge whether the case is suitable for this form of treatment, whether the patient is able to have the required dosage administered rapidly or whether it must be given slowly in order to conserve the strength of the patient. He is thus able to cooperate with the referring physician to better advantage during the treatment and after care.

Cases suitable. When deep x-ray therapy is mentioned one naturally thinks of cancer but that is only one of the things which can be benefited by its use. During the past three and one-half years it has been my privilege to treat approximately five hundred different patients with high voltage x-ray. In this number there were carcinomas, sarcomas, malignant ovarian tumors, teratomas, Hodgkin's disease, splenomyelogenous leukemias, polycythemias, Banti's disease, uterine fibroids, uterine bleeding without demonstrable pathology, exophthalmic goitres, toxic adenomas of the thyroid, tuberculous glands and hypertrophy of the prostate. All of these conditions, except the thyroids, were situated deeply within the body where they were inaccessible to any other form of treatment. Of the patients suffering from malignant growths, all of them were beyond surgical relief. Even though the type of malignant case seeking treatment by high voltage x-ray is practically always inoperable and consequently hopeless, it can truthfully be said that every patient has had temporary relief from pain and diminution in the size of the growth, together with improvement in the general health. This period of improvement has varied from a few months in many to more than three years in a few. Time alone will give sufficient numbers to make statistics valuable in comparison with other methods of treatment.

Results. The patients treated for Hodgkin's disease have all been relieved completely of the enlarged glands and have been restored to their usual mode of living. Eventually, however, they have developed a profound anemia and weakness progressive to death. The period of improvement has lasted from six months to two years.

Of the patients treated for splenomyelogenous leukemia the blood picture has been restored to safe limits, with improvement in the general condition of the patient and in some, restoration to the usual vocation. The period of improvement has lasted from six months to three years after which further radiation failed to influence the patient favorably and death resulted.

The polycythemias have made good improvement in the blood picture, have been rendered symptom free and restored to their usual vocation and are still well after two years.

Banti's disease has shown reduction in the size of the spleen with consequent improvement in the general condition.

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*Read at Omaha-Douglas County Medical Society May 5, 1925.

The toxic thyroid patients have all shown improvement in their general condition with restoration to the usual mode of life after six to twelve months. The size of the gland in the toxic adenomas has been reduced about 25 per cent in each case. Cases treated with the high voltage x-ray have not shown telangiectases to the present time which is in strong contrast to those treated with low voltage x-ray.

Tuberculous glands have been reduced to small, hard, fibrous nodules. In recent cases, especially in the cervical glands of children, the low voltage x-ray is preferable. The high voltage x-ray should be reserved for deep seated glands, as in the mediastinum.

Patients suffering from hypertrophy of the prostate get relief from urinary retention and frequency, slowly progressive in character during the involution of the gland.

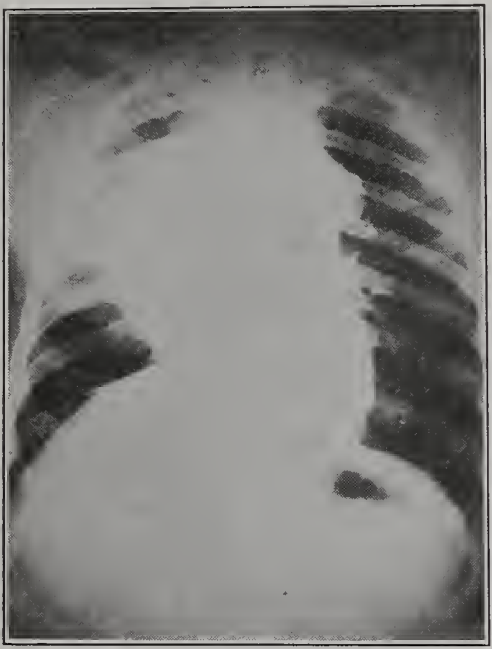

Fig. 1. Radiogram of lymphosarcoma of mediastinum before treatment.

The most brilliant results of high voltage x-ray therapy are seen in patients having fibroid tumors of the uterus. Patients about the fourth decade or older, or younger patients who are bad surgical risks, having fibroids no larger than 7.5 cm. in diameter can be entirely relieved of all symptoms while at the same time the tumors entirely disappear. These results can be accomplished in 100 per cent of cases by one or two courses of treatment. There is no mortality from the treatment, no need for an anesthetic and no mutilation. I have yet to find the first patient treated in this manner who has expressed any regret over this treatment in favor of surgical removal. In fact, every patient has been very grateful for the ease with which the desired results have been obtained. On the other hand, I am compelled to report two failures in the treatment of uterine hemorrhage with no demonstrable pathology. In both of these temporary relief was obtained with an early return of the hemorrhage so profuse that hysterectomy was employed to save the life of the patient. Both had had previous currettements without help.

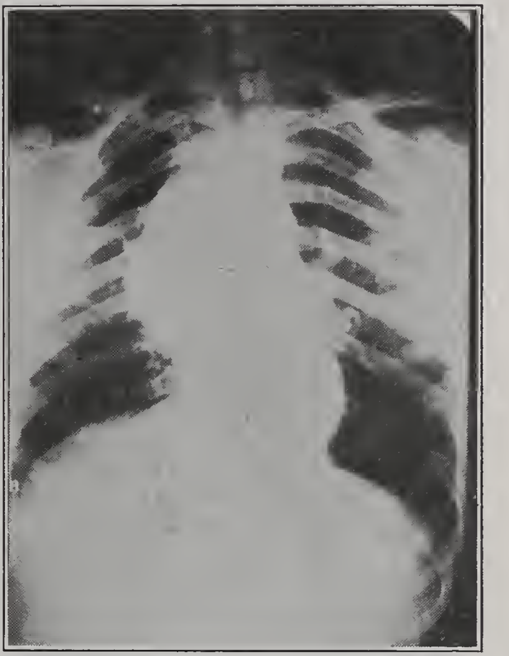

Fig. 2. Radiogram of chest of same patient as shown in Fig. 1, four days after treatment.

SLIGHT SYSTEMIC REACTION

Due to improvements in technique the above results can be obtained in most cases without systemic disturbances. In fact, most patients pass through the treatment with only slight nausea or perhaps emesis of mild degree. Modern technique takes advantage of the fact that the dose when broken up into a few daily treatments has the same or even greater biological effect than when given all on the same day (Bachem, Journal of Radiology, April 1925). The guiding star in the amount of treatment to give each day is the point of fatigue in that particular patient. So accurate is this test that if the patient is carried a few minutes beyond that point of fatigue the results are disastrous. In order that this point may not be exceeded the patient is furnished with an electric signal and is instructed to flash the signal as soon as she begins to feel tired. She is then immediately returned to her room on a cart and allowed to rest until the following day or even longer when necessary. This technique stands in strong contrast to the early method of giving the entire dose at one seance, using hypnotics, if necessary, to keep the patient comfortable. By following the technique described above not a single patient has shown changes in the blood count except a slight increase in the small lymphocytes. I have routinely made complete blood counts of all patients before treatment and after treatment in order to determine the proper technique which would disturb the patient the least and yet affect the tumor the most.

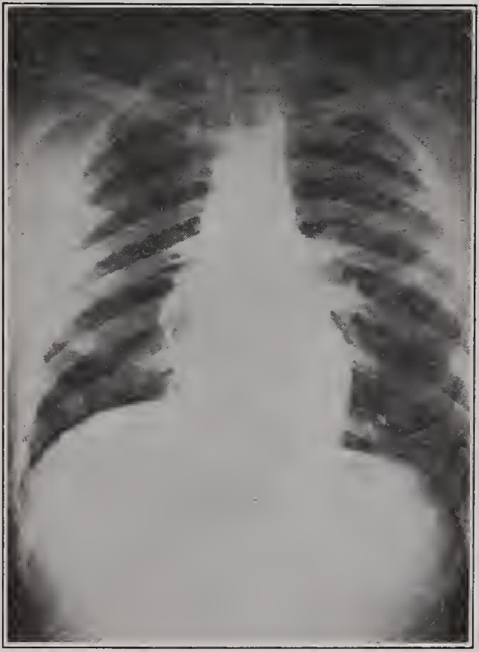

Fig. 3. Radiogram of chest of same patient five months later.

PATIENT'S ROUTINE

I have found a definite routine very helpful to the patient. This routine consists of hospitalization with rest in bed during the course of treatment. The patient is put on liquid diet and is alkalinized by taking fruit juices as a part of the diet and the ingestion of soda bicarbonate gr. xxx every four hours. She is taken to and from the x-ray department on a cart if the treatment is being applied over any part of the abdomen.

Before the treatment is begun a history is obtained, complete physical examination is made, including urine analysis, complete blood count and blood Wassermann test on every patient. Where indicated x-ray examination, gastric analysis and stool examinations are made.

METHOD OF ACTION

In vascular tumors the immediate results are startling in character. Fig. 1. Patients who were suffering from sarcoma arising in the lymph glands of the mediastinum where the pressure was so great that the patient must sit up to sleep, the upper half of the torso was edematous and the superficial veins dilated, were able to sleep horizontally and the edema and dilated veins had disappeared within forty-eight hours after the first treatment. This rapid decrease in size is due, in my opinion, to the effect of x-rays on the endothelium lining the blood vessels. According to Warthin, within twenty-four hours after x-ray treatment the endothelium of the small capillaries becomes edematous, swelling until the lumen is closed, thus shutting off the circulation and reducing at once the vascularity of the tumor. The end result of this swelling of the endothelium is an endarteritis obliterans. This aids the direct action of the rays on the cells of the parenchyma of the tumor which soon lose their identity, disintegrate and heal by fibrosis. Fig. 2. Following the treatment the tumor gradually decreases in size and the patient is relieved from pain. Fig. 3.

PROPER TECHNIQUE ESSENTIAL

The application of proper technique for each patient is the secret of success in high voltage x-ray therapy. The patient must be placed in the position in which the treatment is to be administered and while in this position the thickness of the part is measured and the depth of the tumor from the surface is estimated. With this information in hand the dosage is estimated for that particular patient using the Dessauer charts as modified by Bachem. Fig. 4.

Part	Depth Ant.	Depth Post.	% Ant.	% Post.	% Total	Ma Minutes
Skin	0	20	100	12	112	600
Tumor	10	10	43	43	86	
Skin	20	0	12	100	112	600

Fig. 4. Chart showing method of estimating tumor dose and skin dose when two ports of entry are used.

The factors used by me in giving this dose are voltage, 200,000, filter, 1 mm., copper, 1 mm., aluminum, distance, 50 cm., milliamperes, 4, time, as indicated by the measurements.

PURPOSE OF TECHNIQUE

The whole purpose of using this technique is to get sufficient dosage of x-rays into the tumor itself to affect a regression. This dosage must be introduced without overdosing the skin. The x-rays necessary for this result are so penetrating that they go through the human body and out on the other side. Some of them are stopped in the tumor, all set up scattering rays in the tumor and the tissue making up the tumor gives off secondary rays. The dosage then is made up of the sum of the direct x-rays, the scattering rays and the secondary rays. The dosage estimation is based on this fact. The tumor is crossfired from several angles so as to build up the tumor dose and at the same time limit the skin dose to a safe quantity. By proper technique approximately homogenous radiation can be administered to any part of the body.

CONCLUSIONS

Experience has proven that high voltage x-ray therapy has a definite field in medicine. It is the greatest palliative agent known in the treatment of inoperable malignancies. It is the treatment of choice in fibroid tumors of the uterus no larger than 7.5 cm. in size. It is of great value in the treatment of Hodgkin's disease, splenomyelogenous leukemia, polycythemia, exophthalmic goitre and hypertrophy of the prostate. In accessible cases radium can be combined with high voltage x-rays to the advantage of the patient.

DISCUSSION

DR. R. W. FOUTS: The doctor has presented a very comprehensible and I believe conservative paper on x-ray therapy. His experience practically coincides with ours, extending over a period of 3 years.

I think radiologists as well as every other physician will have to admit that we do not have all that is sought after in treatment of malignancy, but I believe we are safe in saying we have the best treatment at the present time.

With reference to fibroids I am not betting 100%. 2 cases came to operation, one 8 months and one 5 months after treatment, after specimen was removed were unable to tell microscopically that any radiation had been applied to fibroids. In another post mortem case of fibroids, however, we were able definitely to determine the effect of the ray on part of the fibroid tumor.

There is no question but that high voltage x-ray is the most efficient in handling deep seated tumors but I believe as far as goitre and tuberculous glands are concerned that low voltage is just as efficient. I think that the day is past when any one is justified in attempting surgical procedure in tuberculous glands.

We have combined the x-ray with the actinic rays for 3 years, giving actinic light along with the x-ray and following it and have given as much as 750 milliampere minutes with filters and one case of 900 milliampere minutes and have not seen moist skin where actinic has been used. Skin will become black and peel off after 4 or 5 weeks. I repeated this dose and today you would never know she had an x-ray treatment. She has gained 40 pounds and is healthy again. Her trouble to begin with was papillary carcinoma of uterus. This type of tumors under x-ray do almost as well as the sarcomas.

I think we do not have as yet the whole answer. Undoubtedly there is something in the make up of the patient in the field of biochemistry and we cannot accurately forecast what the result will be because each patient is a law unto himself.

I believe the x-ray therapy is worthwhile. It has not come up to the expectations of some of the more enthusiastic men of 4 years ago, but it is something I believe to aid patients suffering from these things and they can have some hope in the efficacy of such treatment.

DR. W. L. ROSS: Dr. Tyler has said many interesting things. One is the decided change in technique of deep therapy to that of fractional dose, where formerly they kept the patient on the table for from 1 to 4 hours. Dr. Tyler says the dosage is governed, and the treatment stopped when the patient begins to get tired. I think this could also be checked up by the pulse and temperature of the patient. I think this should be done in every case rather than just take the patient's word when they are getting tired. No two patients will react the same to the same dosage, therefore, if the pulse and temperature is taken one can establish a technique that is safe.

I think the so-called deep therapy of 200,000 volts is gradually coming into disfavor because the result following deep therapy has been very disheartening to the patient. Fractional dosage is overcoming this.

Another surgical condition is tuberculous peritonitis and tuberculosis of the tubes and ovaries. Smithies of Chicago reported some very valuable results with this treatment for tuberculosis of ovaries, tubes, uterus and other deep seated tissues.

I had a case of tuberculosis of the kidney where one had been removed years previously and this responded very nicely to the x-ray treatment which was the only thing we could hope to help cure the other kidney.

Another thing very common and satisfactorily treated is chronic or acute appendicitis. I know of no disease wihch responds so well. Fractional dosage should always be used.

DR. L. D. McGUIRE: It is certainly true that all malignant lymphomas melt away under the x-ray, but it is equally true that they all come back afterwards. I have seen a large number of cases treated by x-ray and have seen the tumor melt away, but pictures taken 1 or 2 years later show they are coming back again. I believe, however, it is the best treatment for tuberculous glands.

In regard to Fibroids: I would like to stay x-ray men from treating fibroids. If it is applied for fibroids it will hit the ovaries with equal strength as it hits the fibroids. Certainly then it is more conservative to take out the fibroids than to apply the ray that hits ovaries and uterus. If one must use the ray, radium applied in uterus will do the work and will have much less effect on the ovaries, as its penetration is much less.

Goitre: I saw many exopthalmic goitres treated with x-ray and after 4 or 5 months they still were running an elevated basal metabolic rate and had to resort to operation. To reduce an adenoma which is hyperfunctionating it would take a long time to bring it down to normal, and all this time changes would be taking place in the heart which is most hard hit.

I am with the x-ray men except in the case of fibroids and goitre.

DR. A. SACHS: I am especially interested in one site of carcinoma and that is the colon. This is a favorable site for removal but some cases cannot be removed. The reaction that follows x-ray treatment in this region seems to be so much greater than the reaction of other parts. I would like to ask if there is any special reason for it other than a local reaction. The reaction in these cases often produce a very marked anemia and an intense colitis with bloody stools.

DR. J. W. DUNCAN: Some uterine hemorrhages occurring in young women in whom very little is found on bimanual examination and in whom it is very important to conserve ovarian function, the so-called cases of hemorrhagic metropathy, should not, in my opinion be treated with radium or x-ray. Fibroids in women of 45 or 50, if they are complicated with adnexal disease, either tubal or ovarian, seem hardly the proper cases for radiation therapy.

I do not believe that pedunculated fibroids should, under any circumstances, be treated with the x-ray.

In the majority of cases the indication for radiation therapy consists in cardiac or renal disease which contra-indicate surgical attack.

DR. A. F. Tyler, (conclusion): The point in Dr. Duncan's discussion is well taken. I would not recommend the use of x-ray in treating women before the age of 30 and would not recommend it where there are complicating conditions. A hemorrhagic uterus without pathology does not give good results in treatment with x-ray.

In regard to Dr. Sachs' question about the effect of the ray on the colon. If you are treating carcinoma of the colon and give 100 to 110% to the tumor that means you are giving the same amount to the mucosa of the bowel which is more sensitive than the tumor. Because of this you may get bloody stools and tenesmus. This cannot be prevented when that dosage is given. We try to expose as little of the intestinal mucosa as possible by using a small cone.

From Dr. McGuire's standpoint there is not much left for the radiologist to do so I think that we should all learn to be surgeons. It is true that these sarcomas return in a year or two, but they return if you cut them out, so I do not see anything to be gained by cutting them out, especially if they are in the mediastinum.

I have in the past been more enthusiastic about the treatment of goitre by radiation. I do not know how long it takes these people to return to normal after surgical treatment. The surgeons claim 21 days. We have made basal metabolism estimates in all patients before, during and after treatment and find that the rate returns to normal in 6 to 12 months. I have treated cases which were operated first and returned and were treated afterwards by radiation.

The question raised by Dr. McDonald is very interesting, and one which I hope will be solved by the collective work of pathologists, radiologists, physiologists, etc.

In the early days when high voltage x-ray was first introduced and a single dose used the patients suffered a great reduction in red cells and sometimes actually died following treatment. In my early training, because of the inefficient apparatus, we were compelled to treat even skin lesions with fractional doses. Good results were obtained. For that reason I began to apply the same method in high voltage x-ray treatment. We must treat the patient as well as the tumor. If we had not come back to treating by fractional doses we would have had all dead patients.

Dr. Ross' point in regard to taking each patient's pulse and temperature after treatment is a good one. I have done this with all patients in the hospital. I have not found any change in the pulse rate of these patients unless, of course, they were vomiting, and have found no change in temperature under the fractional dose method of treatment.

OBSTETRICS AND THE OSTEOPATH

Earl C. Sage, M. D., Omaha, Nebr.

In the last six months it has been my lot to inherit two obstetrical cases "handled by" one self-styled "osteopathic physician and surgeon". In the Omaha Classified Business Directory of the Telephone book, his advertisement takes up half a column. How many obstetrical patients he attends during the year, I do not know, but the case histories of these two women who came under my observation, I believe are of sufficient interest to report.

The first patient was an eclamptic—I was called about 2 A. M. by the osteopath, asking me to do a caesarian section on his patient immediately. He said the patient was having convulsions, had lost consciousness and must have something done at once. The patient was brought to the Wise Hospital in an ambulance on May 1, 1925. The following resume gives the picture of her twelve days hospital care:

Mrs. C. M. G.; No. 21494; white, age 18, primipara, was brought into the hospital in an ambulance, unconscious and in convulsions. Temperature 102-103.8 degrees—uterine contractions every 3-5 minutes; B. P. 150-85; catheterized specimen of urine, loaded with albumin, hyaline and granular casts.

The patient started to have uterine contractions at 5:30 P. M., April 30, 1925. She could not see at 8 P. M., and had her first convulsion at 2:15 A. M., May 1. At this time she became unconscious. After her entrance to the hospital she had convulsions every twenty minutes, the attacks lasting about two minutes.

The abdominal examination showed that probably the position was an R. O. P.; no foetal heart sounds were heard. Vaginal examination showed two finger's cervical dilatation with the head partially engaged.

It was explained to the "osteopathic physician and surgeon" that a caesarian section on such a patient would be a very hazardous procedure and it was advised to control the convulsions by morphine, and increase the patient's elimination. One-half grain morphine was administered at 4:30 A. M.; one-fourth grain morphine at 6:30; 7:30; 8:30 and 10:30 A. M.; at which time there was almost complete dilatation of the cervix. There had been four convulsions during this time, but they were becoming less severe. Ether was administered during each convulsion.

To increase elimination, a 5 gallon colonic flush of 5% glucose and 2% soda bicarbonate was administered. Two ounces of castor oil were left in the stomach after a gastric lavage. An electric bake was given for 35 minutes during which time ice was kept to the head. Rotunda method of treating eclampsia.

At eleven o'clock A. M., May first, there was complete dilatation; the blood pressure had dropped from 150-85 to 120-85 and there had been no convulsions for the last three hours. Forceps were applied to the occiput, the biparietal diameter being a little above the level of the ischial spines. A dead foetus was delivered. There was a first degree laceration, which was promptly repaired. Nitrus oxide-oxygen anaesthesia was administered during the delivery.

One hour after delivery, proctoclysis of glucose and soda bicarbonate was started and 1000 cc of the solution retained. Another liter of the same solution was administered at 3 P. M. and this was retained.

At 6 P. M. patient was still unconscious. Her breathing was very labored and she was cyanotic. Her pulse was about 136 per minute. Temperature 104°. Mucus continued to run from her mouth and hypodermics of 1-100 grain of atropine were employed to check this. Careful attention was given to the respiratory process by keeping the patient lying on her side, and by cleaning the mouth, nose and throat after each fit. The room was supplied with plenty of fresh air.

Ampules of 1½ grains digifoline were given hypodermatically every 3 hours to slow the heart action, which, after six doses, dropped from 136 to 108.

On the second day the abdomen became very distended and pituitrin ½ cc.; eserine grains 1-40; and strychnine sulphate grains 1-40; were given by hypo. Turpentine stupes were also used and a glycerine-magnesium sulphate-turpentine enema, administered.

Catheterized specimen of urine showed many hyaline and granular casts many colon bacilli and 4 plus albumin. 1½ grains acriflavine pills were given A. M. and P. M. with soda bicarbonate drachms one every 3 hours. 2% mercurochrome was used in the bladder.

We endeavored to get 2500 cc. of fluids into the patient either by mouth, under the skin, or by rectum, every 24 hours. The patient was semi-conscious part of the time; pulse still 120-132 per minute although the digifoline was still being used.

May 3, 1925. Third Day. Pulse 84-100. Temperature 99.6°-101.4°. B. P. 150-110 at 11 A. M. Patient still distended, conscious at times, recognized family. She started to cough and spit up yellow mucus.

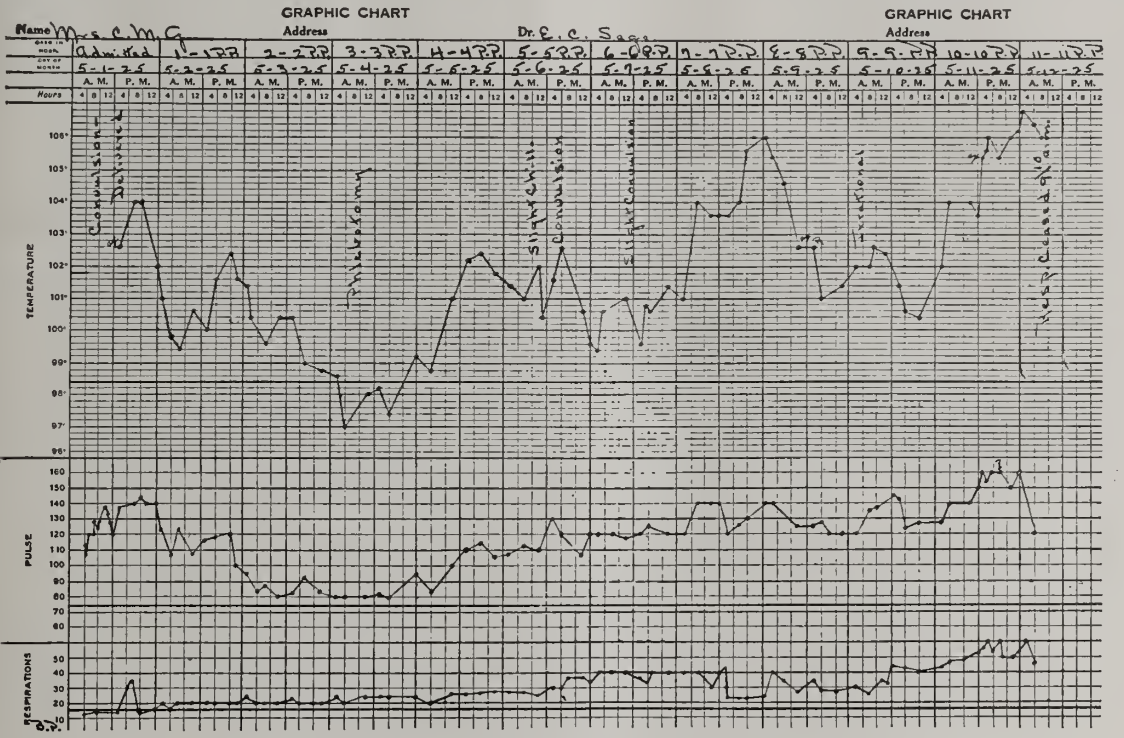

CHART NO. 1
Mrs. C. M. G. — Wise Hospital — No. 21494 — Eclamptic.

Patient able to take fluids by mouth, about 1400 cc. taken in all.

May 4, 1925. Fourth P. P. day. From 7 A. M. May 4 to 7 A. M. May 5. 2740 cc. fluids ingested and 500 cc. excreted plus the amount voided involuntarily. Temp. 97°-98.2°. Pulse 80, resp. 24. B. P. 195-110 at 8:30 A. M. and 150-90 at 4:30 P. M. On account of this marked increase in blood pressure, 500 cc. of blood was withdrawn. Patient very restless; talks irrationally. Patient still distended.

May 5, 1925. Fifth P. P. day. Temperature rising —102°. Pulse 100. Over 2500 cc. taken by mouth. Patient could not retain proctoclysis—had large brown liquid stools. Catheterized specimens of urine still show 4 plus albumin. Blood pressure 210-130.

May 6, 1925. Sixth P. P. day. Temperature 101.4°-102.6°. Pulse 108-120. Respiration increasing, 26-36 per minute. Blood chemistry showed 74 mg. of N. P. N. to the 100 cc. of blood. Blood sugar 100 mg. to 100 cc. Same urinary findings. At 1:40 P. M. patient had a convulsion, B. P. 180-70. Pulse and temperature very irregular. Patient perspired freely.

Eye Ground Examination by Dr. H. B. Lemere.

Both optic nerves were covered with an exudate. There were numerous hemorrhages along the main retinal vessels. Nerves were not swollen. There was a retinal detachment of the lower 1-3 of the retina of the right eye and the lower ¼ of the retina of the left eye.

May 7, 1925. Temperature 99.4°-101.4°. Pulse 120, respiration 40. Patient was slightly cyanotic, very restless, took fluids by mouth and by hypodermoclysis. Total intake 3060 cc., output 500 cc. plus the involuntary urination. Urine continued to show 3 plus albumin, many granular and hyaline casts. Patient had two slight convulsions. Blood pressure 130-60.

May 8, 1925. Temperature 101°-104°. Pulse 120-140—resp. 40. Total intake 2080 cc. output 600 cc. plus. Patient cyanotic most of the time. Given digifoline for heart. Dr. James Goetz examined the heart and chest and found a pericardial friction rub. This pericarditis was a terminal condition; there was also evidence of pulmonary oedema. Respirations were labored. B. P. 150-70.

May 9, 1925. Temperature 102°-106°. Pulse 120—resp. 28. Patient still took fluids by mouth, had involuntary large black liquid stools, her abdomen was distended. Total intake 3420 cc. output 135 cc. plus.

May 10, May 12, 1925. Patient became weaker, more irrational, respirations gasping, temperature ranged from 102°-106°. Urinary findings as previously stated; blood perssure continued high; 160-60. Spinal punctures showed marked increase in intra-cranial pressure. 200 drops per minute, about 50 cc. removed. The lungs showed evidence of failing heart action, as moist rales were heard at both bases; there was a dulling of the percussion note, breathing was labored and the patient cyanotic. Breathing became more shallow, pulse weaker and irregular; temperature rose steadily to 106.6° and patient died at 9:10 A. M., May 12, 1925. An autopsy could not be obtained. (See chart No. 1).

The first case represents then, a patient practically moribund when the obstetrician was called into consultation. The osteopath volunteered the information that the urine was carefully examined every two weeks during the latter months of pregnancy, but how much credence can be placed on his statement, when you read the heading of his advertisement, "Find It, Fix It, and Leave It Alone". Under these circumstances, do you feel that this girl of eighteen years received the kind of prenatal care she was entitled to? If we had been successful in overcoming her profound toxemia, enough damage had been done so that she would have been blind for life probably, and would have had nephritis for many years.

The second case which this "osteopathic physician and surgeon" attended, came under my supervision six days after the baby was born. The relatives of the patient insisted on consultation when they themselves could see that all was not going well. On Oct. 22, 1925, I was called to see Mrs. R. S. who was delivered at home. The osteopath said she had a severe post-partum hemorrhage, which he checked as effectively as possible by ergot and "manipulative measures." The patient's temperature continued to rise from 101-103° and it was the opinion of the osteopath that the fever was probably due to some retention of the secundines, so he efficiently (?) administered an intra-uterine bichloride douche on the fifth post partum day which he considered par excellence. To help tone up her general condition she was turned over on her stomach once or twice a day and given spinal adjustments. Why she did not get a phlebitis or an embolus, is a mystery to me. Her relatives could see that such a method of treatment was not producing results, so the "osteopathic physician and surgeon" was dismissed and I was asked to look after the young mother. The osteopath assured the relatives that they were foolish to incur this unnecessary expense as the patient had "intestinal flu" and would recover just as quickly at home.

She was sent to the Methodist Hospital in an ambulance Oct. 23, 1925. Admission temperature 100.4°, pulse 112, respirations 30. The patient looked toxic and anemic; she was having chills and would sweat profusely. Her blood count that day showed 50% hemoglobin; 2,980,000, R. B. C.; 12,000 W. B. C.; 85% polys; 15% lymphocytes. Urine examination showed a trace of albumin, few W. B. C. and bacilli.

General physical examination was negative except for the paleness of the mucus membranes, the anxious expression of the patient's face, and tenderness over the lower part of the abdomen. The fundus of the uterus was felt about two finger's breadth, above the symphysis.

To favor involution, quinine grs. two and strychnine grs. 1-40, were given every 3 hours. An ice cap was kept on the lower abdomen and digifoline grs. 1½, given to slow down the heart. Fluids were forced.

Oct. 24, 1925. Patient complained of being very faint and of having "sinking spells." She left cold although her temperature was getting a little higher—101°. Blood culture sterile.

Oct. 25, 1925. Early Sunday morning her temperature was 102.2°. Patient had a severe chill, felt very tired and weak, pulse became irregular and fast—130-150 per minute. After the chill, she sweat profusely. 300 cc. of normal salt were given intravenously at 7 A. M. and preparations were made for a blood transfusion. The blood of the sister-in-law had already been matched with the blood of the patient and the donor was obtained without any delay. At 9:30 A. M., 450 cc. of blood in citrate solution was given intra-venously. The patient had quite a reaction with four chills the following two days, the temperature rising to 104.6°, dropping to 99°.

Oct. 26, 1925. Monday. Patient had a chill lasting for 30 minutes; vomited; but said she felt much stronger. Her facial expression was certainly much more hopeful. Blood count 50% H. B.; 3,040,000 R. B. C.; 14,000 W. B. C. Temperature 99°-104°.

Oct. 27, 1925. Temperature dropped, highest being 101.8°, lowest 98.4°. Patient felt much better. Ate a soft diet and rested very comfortably.

Oct. 28, 1925. Temperature down all day—98.6°. Acriflavine gr. 1½ q. A. M. & P. M. to combat urinary infection. Stools formed now, instead of a watery consistency. Patient felt that she was going to get well, where before she had been very despondent.

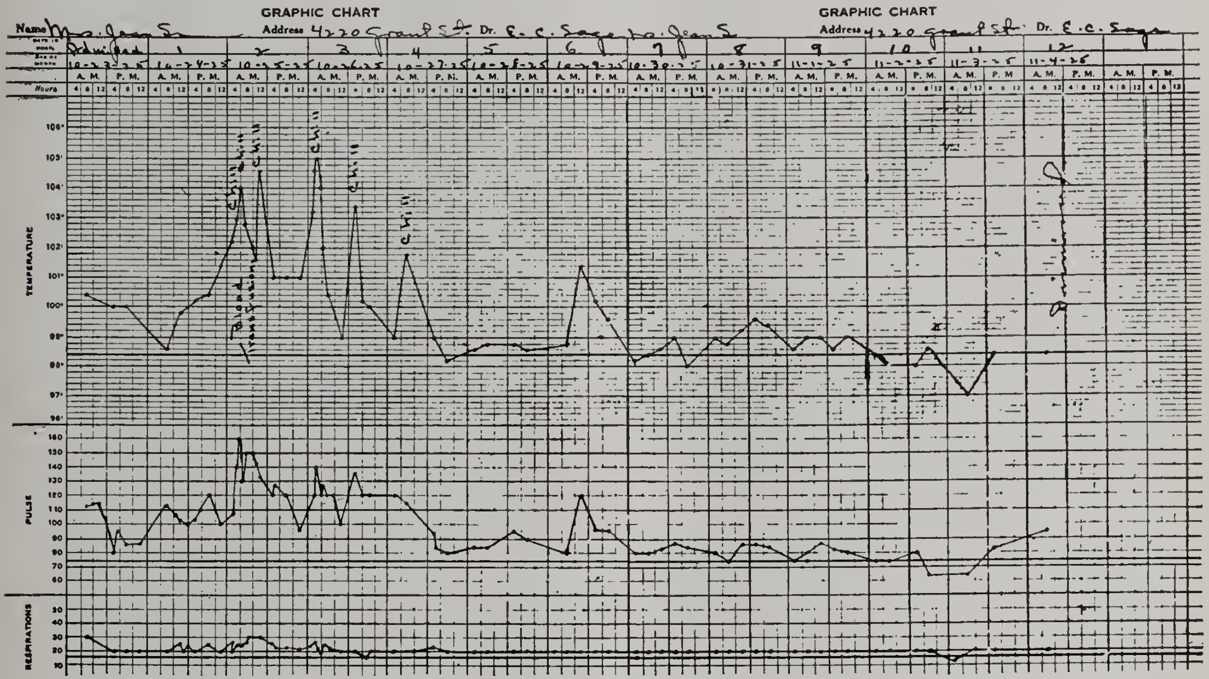

CHART NO. 2
Mrs. R. S. — Methodist Hospital—Post-partum hemorrhage & infection.

For the next week the patient remained in the hospital and rapidly gained in strength so that she was able to walk out on her twelfth day. The accompanying chart will show that with the exception of Oct. 29, 1925, the temperature stayed down and was normal during the last three days. (Chart No. II).

In this instance the outcome was much more satisfactory, and I am sure this patient and her many relatives will not employ osteopaths hereafter to attend confinement cases.

The following routine has been accepted by the obstetrical department at the University of Nebraska, in the treatment of the patients with the toxemias of pregnancy. It is copied very closely after the care given this type of patient at Johns Hopkins.

1—Patients must be sent into the hospital whenever they show:

(a) Systolic pressure of 150 or more and

(b) Undue rise in diastolic pressure.

(c) Any one of the above symptoms associated with severe headache, epigastric pain or pronounced edema.

(d) Sudden amaurosis, even if none of the conditions mentioned above are present.

2—Patients with increasing blood pressure and definite trace of albumin must visit the dispensary twice a week. If they do not follow directions, Social Service must visit them promptly.

WARD SERVICE.

Toxemias—1—In moderately sick patients, when the albumin does not fall to below 1 gram. per liter within a week, or when the general condition is not satisfactory, the induction of labor should be seriously considered.

2—Very ill patients will probably have induction of labor sooner, immediate induction when amaurosis develops suddenly, either with or without epigastric pain. In nulliparae with rigid cervix, caesarian section may be considered.

1—UPON ADMISSION. Patients with frank eclampsia are:

(a) To be placed in a quiet room and to be disturbed as little as possible.

(b) To have a special nurse continuously until definitely out of coma.

(c) To have ¼ gr. morphia by hypodermic immediately.

(d) To be catheterized, examined medically and obstetrically and bled for 200 c. c. under nitrous oxide anesthesia if conscious. The venesection is done only when it is necessary to obtain blood specimen for research work.

(e) To be placed on one side, with foot of bed elevated so long as coma persists. Mucus to be swabbed from pharynx as it collects.

(f) To have water freely when conscious. If patient cannot drink on account of coma or lack of desire, the intravenous administration of 500 c. c. of 5 per cent glucose soltuion should be considered.

(g) Not to be delivered until after cervix is fully dilated. Then by the simplest operative means, unless spontaneous delivery seems imminent.

(h) No chloroform to be used.

(i) Notify the chemical assistants as soon as the patient is admitted, so that the necessary observations can be made.

2—ONE HOUR AFTER ADMISSION. If comatose give 2 grams chloral hydrate in 100 c. c. of normal salt solution and the same quantity of milk per rectum. If conscious the chloral can be administered by mouth in 100 c. c. of milk.

3—THREE HOURS AFTER ADMISSION. ¼ grain morphia hypodermically.

4—SEVEN HOURS AFTER ADMISSION. 2 grams chloral hydrate as above.

5—THIRTEEN HOURS AFTER ADMISSION. 1.5 grams chloral hydrate as above.

6—TWENTY-ONE HOURS AFTER ADMISSION. 1.5 grams chloral hydrate as above.

(a) While eclamptic patients are under treatment the assistants and nurses must insist upon greatest possible quiet on the third floor.

(b) Catharsis, sweating or venesection in excess of 200 c. c. must not be employed.

In conclusion, it might not be amiss to acquaint you with the status of the osteopath as given to me in a personal communication from W. H. Wilson, M. D., Chief of the Bureau of Health, State of Nebraska.

"Osteopaths have the same legal right to practice obstetrics in this state as have medical men. I am quoting you Section 8174 from the compiled statutes, 1922, and I might say further that according to legal opinion that I have had on this statute, it would appear that osteopaths can now practice almost everything—the same as a real medical practitioner.

"This statute, you can see for yourself, is rather curiously drawn but is very elastic and susceptible to almost any construction that an osteopath may desire to put upon it.

"Section 8174. Investigation and issuance of certificate—rights conferred. If upon investigation of the proof submitted to the department and after examination, where examination is required, as hereinbefore provided, the applicant shall be found entitled to practice, there shall be given to said applicant the certificate of said department under its seal, stating such fact, and it shall be the duty of the applicant, before practicing, to file such certificate or a copy thereof in the office of the county clerk of the county in which he or she intends to practice. Such certificate or copy shall be filed by the county clerk and by him recorded in the book kept for that purpose to be called the "Physician's register" and for such service the county clerk shall receive from the applicant the same fees as allowed to the register of deeds for the recording of conveyances. Said certificates shall confer upon the holder thereof the right to practice osteopathy in all its branches, but it shall not authorize the holder thereof to prescribe or use drugs in the treatment of diseases except where the use thereof was taught in the school or college of osteopathy of which the applicant is a graduate, at the time of his attendance at such school, and then only in those cases and in the manner in which the applicant has been taught to use the same. Nothing in this act shall be construed so as to authorize the administration, by an osteopath, of drugs excepting anaesthetics, antidotes for poisons and narcotics for temporary relief of suffering. Osteopathic physicians shall perform only such operations in surgery as was fully taught in the school or college of which the applicant is a graduate at the time of his attendance."

This is the law as amended in 1919.

—520 Bankers Reserve Life Building.

RENAL TUBERCULOSIS*

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The term renal tuberculosis has been defined by O'Neill as "the destructive lesions produced in the kidney by the introduction, retention, and colonization of the tubercle bacillus of Koch."

Various statistics show that of all surgical lesions of the kidney tuberculosis occurs in about 30%.

In 20,770 autopsies in deaths from all causes, Kapsammer found renal tuberculosis in 1% of the cases. Combined statistics show that with pulmonary and other active forms of tuberculosis which come to autopsy 20.2% have tuberculosis of the kidney.

The acute miliary renal tuberculosis occurs as a part of a rapidly disseminating fatal generalized miliary tuberculosis and as such has no interest for the surgeon.

Chronic renal tuberculosis is often the only apparent tuberculous lesion the patient presents and, as such, is of vital importance to the surgeon.

Renal tuberculosis is essentially a disease of early adult life, occurring almost always between the ages of 20 and 40, with the largest number affecting those in the third decade. Males seem to be much more frequently affected than females.

Chronic tuberculous infiltration of the kidney is in its early state a distinctly unilateral disease and that it remains so for a considerable period of time is amply proven by autopsy and clinical studies. The greater frequency of bilateral involvement occurs in those cases where there is an evident active involvement elsewhere in the body.

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*Read before the Elkhorn Valley and Fourth Councilor District Medical Societies, September 29, 1925.

The route of invasion travelled by the tubercle bacillus in its attack upon the kidney is a question of vital importance. That such infections result from direct extension through the blood stream or occasionally through the lymph channels from a remote focus is no longer doubted.

The previously accepted idea that extension took place directly up the ureter against the urinary stream has been greatly reduced in the minds of the present day urologists, in fact, not a few holding that it never occurs.

By far the commonest and most important route by which the bacillus enters the kidney is by the blood stream. Temporary bacillemia is not uncommon, and may occur in the presence of any active tuberculous lesion no matter how small or remote. In such cases it would not be at all unusual for the lesion to escape the notice of the examining physician. Tuberculosis is so common and such a universal disease that the great German pathologist Virchow was led to remark that "Everybody has a little tuberculosis".

That kidneys are subjected to more or less constant invasion through the blood stream in the presence of an active tuberculosis pulmonalis has been shown by the recovery of bacteria from these kidneys in life which after death show no evidence of tuberculous disease.

Next to the blood stream as a pathway of infection the lymphogenous route deserves the most consideration. It is held by certain observers that "the bacilli are carried from the lungs and bronchial lymph glands, through the pleura and diaphragm in a manner accounting for the unilateral state in early renal infection. For manifest reasons such an argument cannot find universal acceptance, although it must be conceded that there is evidence of infection having travelled to the kidney in certain cases from peritneum and pleural cavities. The lymphatics undoubtedly play an important role in spreading the infection through the kidney after they have become infected.

The direct extension from a neighboring focus, such as tuberculosis of the spine, suppurating glands, tuberculous empyema, etc., may give origin to renal tuberculosis is readily conceivable but rarely occurs.

Let the foregoing suffice for a generalized and statistical statement as regards renal tuberculosis.

I desire to devote my remaining remarks to a study of the symptomatology and diagnostic phases of the disease.

Unfortunately, though admittedly true, that complex of symptoms and urinary findings evidencing potentially, at least, a renal tuberculosis do not seem to be entertained with sufficient seriousness in the mind of the average physician of today.

First let us fix in our minds that the actual pathological lesions in the kidneys always antedate the appearance of clinical symptoms by months or even years. Symptoms are not observed until the destructive process is of sufficient magnitude to connect in some way the urinary passages.

For convenience of classification it is well to divide the symptomatology of renal tuberculosis into two groups—(1) generalized and (2) localized.

Of the generalized symptoms chills, fever, sweats and loss of weight, one must be impressed by the fact that in the majority of cases these symptoms are notable for their absence. In those self evident cases presenting a general ravage from the disease there is concomitant pyonephrosis, either of a pure tuberculous type or with secondary infection. In the presence of such large abscesses there is rapid loss of weight, the sufferer has high fever and exhausting sweats. It is a happy revelation to see the rapid and remarkable improvement in these cases after drainage by nephrotomy. Fever is the only general symptom which shows any degree of constancy and this is prone to be very irregular. The typical up and down temperature is rarely observed. Unless secondary infection is present, the fever is not accompanied by a leucocytosis. With secondary infection there is usually a marked raise in polymorphonuclear leucocytes.

In the discussion of the local symptoms it is well to present them in order of sequential importance. It is of the highest importance that the physician should recognize marked vesical irritability as the commonest, in fact, almost the characteristic symptom of renal tuberculosis. This shows itself as a gradually increasing frequency of urination. The onset is insiduous and at first the frequency is confined to the day, later the desire to micturate becomes more frequent and urgent and nocturia supervenes. As progression ensues the micturating interval becomes shorter and the patient may be obliged to void every hour day and night. In severe cases this symptom may range from almost continuous voiding to actual incontinence. In children the incontinence and enuresis may be the presenting symptom. The symptoms of irritability are in the beginning prompted solely by the irritating urine from the affected kidney, later on, when actual bladder involvement ensues, urgency and pain at the end of micturition are added. In some cases the disease presents no more than a cystitis as a symptom throughout its entire course.

The second symptom in sequential importance is blood in the urine. It may be the first and only symptom. It may be slight and transient. The interval between such primary bleeding and the development of other symptoms may range from a few weeks to one or two years. It is readily understandable how this deceptive calm can lull one into a false sense of security. When the bladder mucosa becomes involved in the tuberculous process terminal hematuria is not infrequent and microscopic blood is almost constantly evident.

As a third important symptom pain must be considered. Pain occasionally occurs as the only, and frequently as the principle symptom of tuberculosis of the kidney. Its character is very variable. It ranges from a dull ache in the lumbar region to paroxysmal attacks of renal colic. It may be entirely absent, the kidney may undergo complete destruction without any pain being felt in or referred to it. The attacks of colic are rarely so severe as those which accompany stone in the ureter, and in the early stages are dependent, undoubtedly, upon swelling of the mucous membrane of the renal pelvis and ureter from inflammatory reactions or passage of bits of blood clot or caseous matter through the ureter. With respect to this symptom, however, I believe it is well to inject here a word of caution. Because of stretching of the capsule due to compensatory hypertrophy it is the well kidney which may be the painful kidney.

Obviously the next most helpful adjunct in arriving at a tentative conclusion in these cases is a thoughtful study of the urine. By all odds the most important thing is the demonstration of tubercle bacilli in the urine in the presence of inflammatory products—pus and blood. It is the one finding which clinches the diagnosis. Unfortunately many men have the impression that the demonstration of tubercle bacilli in the urine is a task bordering on the impossible. It is my belief that the organisms can be demonstrated in the urine in upward of 90% of the cases. This procedure is technical and time consuming and may not always be feasible for the busy physician as a routine. What then are the criteria in the urine, which when present, should call for this painstaking search for the offending bacillus? Let me establish them. The typical appearance of the urine in renal tuberculosis is pale cloudy or opalescent from intermixed pus which settles on standing leaving a clear urine above. In the early stages the 24 hour amount is increased, there being an actual polyuria. This early polyuria is characteristic of the disease and should excite suspicion. The specimen for examination should always be a catheter specimen drawn into a sterile container. The urine in renal tuberculosis is pale, acid, and contains albumin. The albumin may be from the affected kidney or may be from a secondary toxic nephritis of the other kidney. Albumin may at times be detected in the very early stages of the disease. Albumin alone without other signs of renal inflammation may at times be found in tuberculous lesions situated in other parts of the body and is not a sign of renal tuberculosis. The urine at the time patients present themselves is hazy or cloudy, depending upon the amount of pus present. Urinary pus in renal tuberculosis, upon standing, will settle to the bottom of the glass in little granular clumps, clinging to the sides of the glass toward the bottom, the urine above remaining perfectly clear. In the ordinary pus infections the clear urine will soon become cloudy, whereas, in renal tuberculosis the urine will remain clear for a considerable period of time after the pus has settled. This is dependent upon the fact that secondary bacteria are often strikingly absent in the urine from a renal tuberculosis. Should the urine remain sterile to culture the probability of tuberculosis is very strong. The only other sterile pyuria is occasionally met with in renal calculus. As has just been stated, while tuberculous urine is generally sterile, in the occasional case a mixed infection with colon bacilli or some of the cocci may occur on a tuberculous base. This mixed infection, if severe, may be misleading and tend to obscure the more important lesion.

In recapitulation let me stress that every patient complaining of bladder irritability should be interrogated with the possibility of tuberculosis of the kidney in mind. If the symptom complex and the urinary findings are sufficiently potential then the responsibility of the attending physician becomes immediately very great. No stone should be left unturned until it is definitely established whether the condition is tuberculous, and having determined this, the elicitation of the location and extent of the disease becomes an absolute necessity if the life of the patient is going to be saved.

The following questions must be answered:

Is one or are both kidneys involved?

Is the bladder involved.

Is there tuberculosis in other parts of the body?

If it is a unilateral tuberculosis is the other kidney healthy?

Upon the prompt answering of these questions will the prognosis and the treatment of the patient depend. This data can only be obtained through a careful differential cystoscopic examination. Early diagnosis can assure the patient of an early operation. For in early diagnosis the disease is elicited in the unilateral phase, and in the unilateral phase an early nephrectomy will save a life.

In conclusion let us bear in mind that a chronic acid cystitis which has started insidiously and resists the ordinary medicaments is highly suggestive of a kidney tuberculosis.

If the attending physician will keep in mind the complex of suggestive symptoms and pursue a diagnostic search while instituting his palliative treatment more of these cases will come to an early diagnosis with the almost positive assurance that they can be cured.

MODERN ASPECTS OF NUTRITION

THE PATHOLOGY OF MALNUTRITION

10. Acid-Base Equilibrium with Reference to Pediatrics — Part II.

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INTRODUCTION

Before taking up methods for the modification of cow's milk with reference to acid-base balance, or with reference to any other factor, it would be well for us to disgress in order to go into a discussion of the differences between cow's milk and human milk. Such discussion may bring to light a rational basis for the statement that cow's milk is by no means the ideal food for infants. Furthermore, it may arm us with the desire and furnish us with the information necessary to undertake intelligently modifications in order to make cow's milk approach as much as possible in biologic efficiency the milk provided for the infant by the breast of its own mother.

The problem of artificial feeding as it stands today is a bewildering one. From the great number of formulas used and recommended it seems, to quote from the editorial in the Journal of the American Medical Association(1) of Dec. 5, 1925, "that infant feeding is a practice guided by unconcealed empiricism rather than scientific rationale." To the deep student of nutrition it appears that artificial feeding is controlled by impulse, for there seems to be a decided lack of principle behind the whole procedure.

The need of greater knowledge in reference to cow's milk and to woman's milk is brought forcibly to our attention by Powers(2), who made a comparison and interpretation on a caloric basis of the milk mixtures used in infant feeding. The result of such evaluation yielded the surprising fact that few are the formulas that resemble human milk in respect to the relative proportions of fat, carbohydrate and protein. To quote again from the same editorial: "In other words, when the multitudes of milk mixtures commonly used in infant feeding are reduced to the caloric percentage formulation, it is perceived that many of them are alike or identical excepting in concentration, degree of denaturization by cooking or souring, and qualitative differences in fat, carbohydrate, protein and salts."

Powers' own statement, also quoted in the editorial, is very interesting. Says he: "The milk mixtures which conform to the caloric percentage distribution of the majority and sweetened condensed milk groups are widely used, because experience has shown that most infants thrive on one or another of them. If one mixture in the group does not seem satisfactory, then another mixture is tried and perhaps still another and probably, finally, sweetened condensed milk itself. Physicians little realize that these mixtures differ from one another, except in the amount of dilution and the degree of cooking. It is an astonishing fact that one-third strength cow's milk with 5 per cent sugar — a mixture universally used in infant feeding and regarded as orthodox by pediatricians of all schools — differs from sweetened condensed milk as it comes from the can only in a degree of dilution and extent of denaturing by cooking and storage". The writer is at a loss to understand why pediatricians prefer the hit-and-miss method of making modifications and of choosing formulas. It seems that artificial feeding has not received the intensive research and thought it deserves.

VARIATIONS IN NORMAL MILK

The average composition of cow's milk and of human milk is stated by Meigs and Marsh(3) to be as follows:

	Cow's Milk Per Cent	Human Milk Per Cent
Water	87.0	87.5
Solids	13.0	12.5
Protein	2.5-4.0	0.7-1.5
Fat	2.0-4.0	2.0-4.0
Lactose	3.5-5.0	5.0-6.7
Ash	0.6-0.7	0.2-0.3

Under conditions of health the composition of milk varies so widely that the data presented by investigators lead to the conclusion that no precise composition can be assigned to the milk of any species. The figures usually quoted are merely used for convenience to represent the average composition of a number of samples.

There are many factors influencing the composition of milk. As will be shown later it varies at different periods of lactation. In the first few days postpartum the milk secreted is known as colostrum. It is more viscid than later milk. Its fat is richer in the unsaturated olein, and on that account the iodine number is considerably higher than that of later milk. Colostrum contains large numbers of granular bodies, spoken of as "colostrum corpuscles", nucleated, full of fat droplets, showing ameboid movement, and four or five times as large as leucocytes. Colostrum possesses greater immunological power than later milk, and is richer in protein and inorganic elements. As a matter of fact, there is a general tendency for the amount of nitrogen, protein and inorganic elements, like calcium, phosphorus and iron, to fall during lactation. With reference to cow's milk, however, it has been demonstrated that the late months of lactation may show a rise in protein and inorganic elements, if the animal has again become pregnant. In such cases the late milk tends to approach the composition of colostrum.

The average composition of cow's milk is affected by the breed of the animal. It is well known, for instance, that Jerseys produce more butter than Holsteins. There are no data with regard to the difference in the composition of human milk depending upon race.

The composition of milk varies with the different stages of emptying the gland. Milk withdrawn from the mammary gland is divided into three kinds: First milk or fore milk, middle milk, and milk finally removed, known as "strippings". Jensen(3a) gives the following figures for the fat content of first milk, middle milk, and strippings:

First milk	1.70 per cent
Middle milk	3.35 per cent
Strippings	6.40 per cent

Engel(4) gives the composition of the ash of human milk removed at different stages of gland content. The figures represent milligrams per 100 grams of milk.

	Fore Milk	End Milk
K_2O	100.80	63.40
Na_2O	44.80	17.60
CaO	37.60	38.10
MgO	5.40	5.20
Fe_2O_3	0.22	0.12
P_2O_5	32.10	28.88
SO_3	9.60	7.20
Cl	71.70	34.20

These figures show variations in amount of ash components according to whether the sample of milk is taken at the beginning or at the close of nursing.

The composition of milk may vary from day to day and even from hour to hour. The fat content of cow's milk, according to Eckles and Shaw(5) is generally highest about midday. Helbich(6), working with human milk, found in some of his experiments that the fat content was highest at 10 a. m., while in others he found that it was highest at 2 p. m.

The nutrition of the mother also concerns the composition of milk. Meigs(7) has reviewed his own work as well as the literature on the relation of food to milk components. The fat is low in the milk of lactating women who are undernourished. The mammary glands cannot synthesize the vitamins. These must come from the food ingested. When the mother's diet is poor in vitamins it follows that the milk produced will also be poor in these essentials.

Menstruation influences the quantity and quality of milk. Grulee and Caldwell(8) observed a variation in the quantity. With the first days of menstruation and continuing for two weeks thereafter, there is an increase in breast milk, after which the amount diminishes. The lowest point is reached four to seven days previous to the next menstrual period. Menstruation also influences the quality of milk. The table following taken from Rotch(9) illustrates the effect of menstruation on breast milk:

	Fat	Lactose	Protein	Salts	Water
			Per Cent		
Second day of menstruation (child's stool, loose)	1.37	6.10	2.78	0.15	89.60
Seven days after menstruation (bowels regular)	2.02	6.55	2.12	0.15	89.16

It is to be noted, however, that Bendix(10) examined the milk of eight women, before, during and after menstruation. According to him variations obtained were not outside the normal physiological limits.

Mental states of mind are sometimes important factors in the secretion of milk. Holt(11) states: "Fright, grief, passion, excessive sexual indulgence, or any great excitement arrests the secretion, or if not arrested the milk may be so altered in composition as to make the child actually ill. Meigs(12) says that it is commonly thought by dairymen that the percentage of fat in milk is likely to be reduced when the cows are chased about by dogs or otherwise disturbed, or when they are in heat.

In conclusion we are justified in stating that the composition of milk varies from day to day, from one nursing to another, and also at different periods of the same nursing. No single analysis of milk can serve to give information as to the average content of the ingredients in the mammary secretions.

CHANGES IN MILK DUE TO THE APPLICATION OF HEAT

Heat produces many changes in milk. The greater the length of time the heating is applied and the greater the temperature, the more profound the physical and chemical changes. The taste is modified to a characteristic "cooked taste". The color deepens. A film is formed in contact with air, which does not redissolve when the milk is cooled. Boiling removes a large part of the gases, nitrogen and oxygen, and nearly all the carbon dioxide. The loss of the latter renders boiled milk more alkaline than raw milk.

When milk is heated the proteins therein undergo marked changes. Caseinogen is altered. The whey proteins, albumin and globulin, suffer coagulation. When heated to 80° C. for 15 minutes, caseinogen is so changed that the time required for coagulation by rennin is prolonged. When caseinogen is boiled coagulation by acid produces flakes smaller than those obtained in raw milk. That heating brings about the actual decomposition of milk protein is evident by the production of hydrogen sulphide and of ammonia.

The fat of milk is not decomposed by heat, but its physical condition is disturbed. The fat globules tend to coalesce. Commencing at about 70° C., the clusters break up, and the cream rises slowly and incompletely. The amount of cream that appears at the surface is smaller than in the same milk in the raw state.

Lactose is not altered, but when the temperature is high and the heating prolonged, it may decompose imparting to the milk a more or less brown color.

Heating also results in the precipitation of some of the salts. Calcium acid phosphate is converted into the insoluble phosphate. The loss of CO_2 aids in the precipitation of some of the calcium salts. Those salts precipitated by removal of calcium may redissolve in part at least when boiled milk on standing absorbs carbon dioxide from the air. Several investigators point out the loss of the nutritive value of milk due to the partial precipitation of the calcium. Heat also affects the vitamin potency of milk. Frohlich(13) and others have shown that milk heated loses its protective action against scurvy. The inability of boiled or pasteurized milk to prevent or cure scurvy is now accepted by nutrition workers and by pediatricians. The anti-scorbutic vitamin C is very unstable to heat. The other vitamins are not so readily affected, although high temperature does reduce their potency to a greater or lesser extent. It is generally assumed that ageing, drying, evaporating, exposure to air or oxygen, sunlight or ultra-violet rays produce a deteriorating effect on the vitamins. Some are hardly affected by one or more of these conditions, while others suffer rapid loss of potency.

Human milk is taken directly by the infant. Cow's milk is, as a rule, heated or pasteurized. Woman's milk is, therefore, better fitted biologically for the infant, since it does not undergo physical or chemical change or suffer a reduction of nutritive potency as a result of the application of heat. Moreover, human milk even from the standpoint of infection, does not need to undergo sterilization or pasteurization, because it is as a rule sterile or almost free from bacteria. The additional advantage in human milk is to be found in the passage of substances concerned in immunity from the blood of the mother to the milk ingested by the offspring. Moro(14) has shown that the blood of infants nursed at the breast contains stronger bactericidal substances than those fed on the milk of the cow.

Even though cow's milk may be bought in the pasteurized condition we must not forget the possibility of re-inoculation in the process of handling at home. Furthermore, we must not forget that the killed bacteria in pasteurized milk are in themselves a source of danger to health. Menten and Manning(15), Zeckver and Goodell(16), and Levine and Kolars(17) have shown that dead bacteria are by no means innocuous, for when injected into an animal they produce hyperglycemia, a grade of hyperthermia ranging from a rise little above the normal to 104° F., and marked changes in the white count.

The mechanical process of centrifugation for the clarification of cow's milk and for the separation of cream resembles the heating of milk insofar as it relates to the partial loss of nutritional ingredients. Some casein is thrown down and with it some fat, and the calcium salt of phosphoric acid held in the original caseinogen. The slime from the separator bowl contains insoluble dust, cell bodies, casein, calcium phosphate and some fat. The ash content of the residue is 2 to 3 per cent higher than that of the milk.

THE STOOLS

The stools of breast-fed infants and those fed cow's milk differ in number, in consistency and in reaction. The breast-fed infant has three or four stools a day during the first few weeks or months of life. The consistency is that of pea soup. The number of stools gradually diminishes to two or three in the twenty-four hours and the consistency becomes more salve-like. Infants thriving on cow's milk have as a rule fewer movements, and slight constipation may not be uncommon. The stools in the breast-fed has a characteristic golden yellow color. This golden yellow color is due to bilirubin. The color of the stools of the artificially fed baby is a lighter yellow, due in part to the larger amount of protein and in part to the conversion of some of the bilirubin into hydrobilirubin. The odor in the stools of breast-fed infants is due to lactic acid and to fatty acids. Infants on cow's milk may excrete feces of a fecal or cheesy odor, resulting from the action of bacteria on the casein. The stools during breast-feeding are acid, while those during ingestion of cow's milk are alkaline. Ylppo(17a) has shown that the pH of the feces after breast milk feeding is acid, about pH 5.0, while after cow's milk feeding it is alkaline, about pH 8.0.

DIFFERENCES IN COMPOSITION BETWEEN COW'S MILK AND HUMAN MILK

That cow's milk differs in composition from woman's milk is evident from the existence of chemical tests distinguishing one milk from the other. These tests make use of the reactions of (1) Moro(18), (2) Bauer(19), (3) Umikoff(20), (4) Tugendreich(21), and Davidsohn(22).

1. Moro employs a 1 per cent aqueous solution of neutral red as a differential reagent. Human milk turns yellow; cow's milk becomes purple.
2. Bauer treats milk (2 to 3 c. c.) with a drop of 0.25 per cent aqueous solution of neutral blue sulphate (Grubler). Human milk yields a violet blue color, while cow's milk on similar treatment assumes a greenish blue color. Furthermore, on shaking vigorously the reaction mixture with 5 volumes of ether, the color is extracted from human milk, but not from cow's milk.
3. Umikoff heats on a water bath, at 60° C., 5 c. c. of milk and 2.5 c. c. of 10 per cent ammonium hydroxide. The heating is continued for 15 to 20 minutes. A reddish violet color ensues in the presence of woman's milk, while no change takes place with cow's milk.
4. Tugendreich proceeds by mixing equal volumes of milk and 1 to 2 per cent of silver nitrate. The mixture is boiled rapidly for 3 minutes. Cow's milk yields no characteristic reaction, while human milk assumes a coffee-brown or brownish coloration.
5. Davidsohn employs an enzyme to determine the kind of milk. Lipase has the power of digesting tributyrin into free butyric acid and glycerol.

The lipolytic power can be measured quantitatively through estimation of the acid by alkali titration. Human milk hydrolyzes tributyrin into butyric acid and glycerol in but a few minutes, whereas cow's milk does so in a few hours. Evidently lipolytic activity is much greater in human milk than in cow's milk.

SPECIFIC DIFFERENCES IN COW'S MILK AND IN WOMAN'S MILK

We shall now turn our attentions to specific differences and point out variations, qualitative and quantitative, in protein, fat, carbohydrate and other components, in inorganic content, in the hydrogen ion concentration, and in the buffer value of milk with special reference to its ability to bind acids.

THE PROTEINS OF MILK

With reference to proteins, it has been shown that the milk proteins of various species are not alike chemically or physiologically, since they can be differentiated from one another by complement fixation and by reactions indicative of anaphylaxis. The blood serum of an animal can be sensitized to proteins of a certain species, so that it will react specifically to that species. Bordet(23), in 1899, showed that repeated injections of cow's milk into other animals resulted in a serum capable of precipitating the protein of cow's milk but not the milk of any other animal. In 1900 Wassermann(24) showed that the blood sensitized to cow's milk acquired the ability to precipitate the proteins of cow's milk, but not those of other milks. Not only the combined proteins of milk but the individual proteins, casein, lactalbumin and lactoglobulin can be distinguished from one another by Bordet's precipitin reaction. By means of this reaction the proteins of cow's milk may be regarded with reference to the human being as "foreign bodies", and the caseinogen, albumin and globulin of each as distinct entities.

By the use of the precipitin method Bauereisen(25) demonstrated the biologic identity of the proteins of the whey and those of the blood. In other words, lactalbumin and lactoglobulin are the same as serum albumin and serum globulin. Caseinogen, however, stands apart from all the proteins in biological properties. Bauereisen is of the belief that the whey proteins of colostrum can be absorbed directly by the infant to form part of the proteins of the blood.

That the proteins of human milk differ from those of cow's milk is again evident from the fact that the phosphorus content of caseinogen is somewhat lower, and the sulphur content higher in human milk than in cow's milk.

	CASEINOGEN		LACTALBUMIN	
	Cow's Milk Per Cent	Human Milk Per Cent	Cow's Milk Per Cent	Human Milk Per Cent
C	52.69	52.24	52.19	47.91
H	6.81	7.32	7.18	7.00
N	15.65	14.97	15.77	14.74
S	0.832	1.12	1.73	1.65
P	0.877	0.68	----	----
	Raudnitz(26)	Engel(27)	Sebelien(28)	Engel(27)

With reference to coagulation it may be said that cow's milk but not human milk may be coagulated by commercial rennin. Both, however, are coagulated by human rennin. The casein of human milk is precipitated with greater difficulty with acids or salts. The clot that forms does not appear in such large coarse masses as the casein from cow's milk. It is more loose and flocculent.

Besides a qualitative variation in the proteins of milk there is a decided difference from a quantitative standpoint. The content of protein and also of inorganic substances show an interesting relation to the rate of growth of the offspring. Proscher(28a) and Abderhhalden(28b), working in Bunge's laboratory, have found the composition of milk to vary with the length of time needed for the young of a particular species to double its weight. The more rapid the rate of growth, the greater the protein and inorganic content.

TABLE OF COMPOSITION OF MILK

Species	Days required to double weight of newborn	Proteins	Salt	Calcium	Phosphoric Acid
Man	180	1.6%	0.2%	0.033%	0.047%
Horse	60	2.0	0.4	0.124	0.131
Cow	47	3.5	0.7	0.160	0.197
Goat	22	3.7	0.8	0.197	0.284
Sheep	15	4.9	0.8	0.245	0.293
Pig	14	5.2	0.8	0.249	0.308
Cat	9.5	7.0	1.0	----	----
Dog	9	7.4	1.3	0.455	0.508
Rabbit	6	10.4	2.5	0.891	0.997

It is evident that the human being has a smaller growth rate than the cow. The former takes 180 days to double its birth weight, while the latter takes only 46 days to accomplish the same end. It, therefore, follows that cow's milk should be richer in protein and inorganic substances. This assumption is verified by analytic facts. Cow's milk has a protein content of 2.5 to 4 per cent, while the protein figures for human milk are given as 0.7 to 1.5 per cent. The ash in cow's milk amounts to 0.6 to 0.7 per cent; and ash of woman's milk is but 0.2 to 0.3 per cent.

The infant doubles its weight at birth in the first six months. In the next six months the weight is not again doubled, for it weighs at the end of the year not four times its birth rate, but only three times. Evidently, in the last half of the year the growth rate suffers diminution. This diminution in rate takes place simultaneously with a decrease in the quantity of some of the building material in the food. The change in composition to accord with the rate of growth takes place not only in human milk but in other milks as well.

Taking the pig and sheep as illustrations, we will compare the quantity of certain milk components before the animal doubles its weights at birth(29) and after it has doubled its weight. The figures below are given in per cent:

	Total Protein		Total Ash	
	Before	After	Before	After
Pig	5.36	4.29	0.871	0.783
Sheep	4.88	4.59	0.841	0.809

The difference in the calcium and phosphorus is also given:

	CaO		P_2O_5	
	Before	After	Before	After
Pig	0.268	0.241	0.329	0.300
Sheep	0.245	0.235	0.293	0.281

Human milk also gives interesting variations with reference to rate of growth. The analysis of human milk by periods is given as evidence of this correlation(30).

	Protein	Ash
Colostrum (1 to 12 days)	2.25	0.31
Transition (12 to 30 days)	1.56	0.24
Mature (1 to 9 months)	1.15	0.21
Late (10 to 20 months)	1.07	0.20

Fat and carbohydrate, however, do not undergo a decrease to correspond to the lessened growth stimulus.

	Fat		Carbohydrate	
	Before	After	Before	After
Pig	6.32	7.21	3.19	3.71
Sheep	9.29	9.44	5.04	5.22

Human Milk

	Fat	Carbohydrate
Colostrum (1 to 12 days)	2.83	7.59
Transition (1 to 30 days)	4.37	7.74
Mature (1 to 9 months)	3.26	7.50
Late (10 to 20 months)	3.16	7.47

There are three important proteins in milk, casein, lactalbumin and lactoglobulin. The presence of other proteins has been reported. The existence of some of them has not been confirmed. In the present state of our knowledge the proteins outside of casein and the whey proteins, albumin and globulin, have but little significance.

The relative quantities of the various proteins differ with the species. The table following(31) lists the total protein, the casein, and the albumin content on the basis of 100 parts by weight. No figures are given for globulin, and the total protein is computed from the casein and albumin obtained by analysis.

Species	Total Protein	Casein	Albumin
Rabbit	10.38	8.17	2.21
Reindeer	9.89	8.38	1.51
Dog I.	7.44	4.80	2.64
Dog II.	7.27	4.84	2.43
Cat I.	7.09	3.79	3.30
Cat II.	6.90	3.79	3.11
Cat III.	6.98	3.69	3.29
Cat IV.	7.08	3.59	3.49
Guinea pig I.	5.09	4.60	0.49
Guinea pig II.	5.40	4.79	0.61
Pig I.	5.21	3.76	1.45
Pig II.	4.81	3.26	1.55
Pig III.	5.36	3.71	1.65
Sheep	4.88	4.08	0.80
Buffalo	4.72	4.26	0.46
Lama	3.90	3.00	0.90
Camel	3.87	3.49	0.38
Goat	3.67	2.91	0.76
Elephant	3.45		
Cow	3.40	2.90	0.50
Zebra	3.03		
Mule	2.63		
Horse	1.30	0.75	2.05
Man	2.01	0.80	1.21
Ass	1.85	0.79	1.06

If we scrutinize the table we learn from the data available that all the species, except two, have a greater proportion of casein than albumin. The two exceptions are the human being and the ass. The figures for the milk of these species run as follows:

	Total Protein	Casein	Albumin
Ass' Milk	1.85	0.79	1.06
Woman's Milk	2.01	0.80	1.21

The milk of the ass has not only about the same amount of casein and abumin, but also lactose (6.19 per cent). Like human milk, it is less acid than cow's milk. It is, however, poorer in fat (1.37 per cent). The milk of the ass is very well borne by the infant.

Comparing the proportions of the various proteins in milk, it has been generally accepted that the caseinogen of woman's milk is 1-3 of the protein content, and albumin 2-3, whereas the caseinogen of cow's milk is 5-6, and the albumin 1-6. As a result of the difference in casein content, cow's milk when mixed with rennin forms a thick jelly-like semi-solid coagulum contrasting in a striking manner with the fine soft, flocculent coagulum of woman's milk, formed under similar treatment.

Although very little work has been done on lactoglobulin, it nevertheless plays an important role. According to Engel and Bauer(32) human milk is richer in globulin than in albumin, while cow's milk has a greater content of albumin than of globulin. The large amount of the whey protein, globulin, present in human milk is of great interest in view of the fact that serum globulin and lactoglobulin are identical biologically and in view of the fact that anti-toxins in the blood serum attach themselves to the globulin fraction. When lactoglobulin is injected into an animal a blood serum is developed which has the power to precipitate the globulin of the milk of species from which the injection has been made. In comparison to caseinogen and lactalbumin, lactoglobulin appears to be the strongest antigen and to produce the strongest anti-serum. Colostrum carries a higher power of immunity from infection than does later milk, and this protective influence is related to the higher protein content and probably the higher globulin content of this early secretion.

THE RESIDUAL NITROGEN OF MILK

The residual nitrogen is that fraction of the nitrogen which is found in milk after removal of caseinogen and the whey proteins. In fact, we may consider this residual nitrogen as non-protein nitrogen. A great part thereof is in the form of urea. The nitrogen of human milk is divided as follows according to Schlossmann(33):

	Per Cent of Total Nitrogen
Casein nitrogen	41
Albumin and globulin nitrogen	39 to 44
Residual nitrogen	15 to 20

Less residual nitrogen is to be found in cow's milk than in human milk. The non-protein nitrogen of milk as well as of blood may undergo increase in the case of nephritis. St. Engel and Murschauser(34) examined on two occasions the milk and blood serum of a 21-year-old primipara with chronic nephritis. The non-protein nitrogen of the serum was 5.33 per cent and 7.43 per cent of the total nitrogen; the non-protein nitrogen of the milk was 27.19 per cent and 32.88 per cent. The figures for both blood and milk were much above the normal.

THE FAT OF MILK

The quantity of fat in both human and cow's milk is about the same. The difference lies in the physico-chemical aggregation and in the fatty acids from which these fats are made. Fat in human milk is in a finer state of emulsion. By the use of the counting chamber, more drops per unit volume can be recorded for human milk. The fat of human milk is poorer in volatile acids in comparison with cow's milk. The content of volatile fatty acids of woman's milk constitute 2.5 per cent, whereas the volatile fatty acids of cow's milk make up 27 per cent of the total fat. In other words, woman's milk is richer in the fixed fatty acids than is cow's milk. It has more of the non-volatile oleic acid than cow's milk. It is the presence of this acid of low melting point that gives to human milk fat a relatively lower melting point than the fat of cow's milk. Oleic acid is an unsaturated acid having one double bond. It, therefore, has the power of absorbing two atoms of iodine. The relatively higher quantity of oleic acid in human milk gives to this fluid an iodine value greater than that obtained for cow's milk.

It is interesting to note that some animals yield a very high fat content. Here follow some high figures for fat(35):

Sheep	9.29	Reindeer	17.09
Dog. I.	11.62	Elephant	20.58
Dog. II	12.19	Caaing-whale	43.76
Rabbit	16.71		

Milk contains small amounts of cholesterol and phospholipins. Koch and Wood(36) found in cow's milk 0.072 to 0.086 per cent of phospholipins. The two phospholipins present are lecithin (0.036 to 0.049 per cent) and cephalin (0.027 to 0.045 per cent). For human milk the total phospholipin content amounts to 0.078 per cent, of which lecithin constitutes 0.041 per cent, and cephalin, 0.037 per cent. Stoklasa(37) obtained from one liter of milk 0.90 to 1.13 gms. of lecithin from the mammary secretion of the cow, and 1.70 to 1.86 gms. from that of the human being. Hess and Helman(38) have very recently studied the phospholipin (phosphatid) content of milk. They come to the conclusion that cow's milk contains twice as much as woman's milk.

THE PIGMENTS OF MILK

Milk contains pigments associated with the fat. Human milk, as well as cow's, may be tinted yellow by carotin and xanthophyll. According to Palmer and Eckles(39), the relative proportion of these two pigments is much more nearly equal in the fat of human milk than in the fat of cow's milk.

THE CARBOHYDRATE OF MILK

We find in milk more than one protein, and the fat present is in reality a mixture of glyceryl esters of various fatty acids. But the carbohydrate believed to be present in all milks is the di-saccharide, lactose. This compound is hydrolyzed in the small intestine to form glucose and galactose. The latter monosaccharide may be used in building certain glycolipins of the brain, which are combinations of galactose with some fatty substance.

Human milk is richer in lactose than cow's milk. The average figures usually given are as follows:

Cow's milk	3.5 to 5.0 per cent
Human milk	5.0 to 6.7 per cent

It is interesting to note that figures for milk sugar within the range for the human being is to be found in the following animals(39a):

Zebra	5.34 per cent
Camel	5.39 per cent
Llama	5.60 per cent
Mule	5.69 per cent
Horse	5.87 per cent
Ass	6.19 per cent
Elephant	7.18 per cent

Sugar in the milk is synthesized, according to Porcher(40) and to Cathcart and Paton(41), in the mammary gland itself from carbohydrate present in the blood.

THE ORGANIC ACIDS OF MILK

Scheibe and Henkel(42) were first to report on the presence of citric acid in milk. They found that it was present in cow's milk to the extent of about 0.1 per cent. Nine-tenths of this amount appeared to be attached to calcium. They were not successful, however, in securing any evidence of the presence of citric acid in several samples of human milk. Netter(42a) states that human milk contains 0.5 mg. of citrates per liter, while cow's milk contains 1 to 1.5 mg. per liter, or three times as much. Human milk is poorer in citric acid than cow's milk. According to Scheibe(43) the former contains 0.05 per cent, while according to Soldner(44) the latter contains 0.2 per cent. The larger quantity of citric acid in cow's milk can be accounted for by the fact that the cow is a herbivorous animal. Boswith and Prucha(45) showed that citric acid disappears in the milk which has gone sour. Hess, Unger and Supplee(46) have observed an increase in the citric acid content of cow's milk when the fodder of the cow is changed from stall feeding to grazing.

THE CALORIC VALUE OF MILK

The heat-producing substances in milk are, in the main, fat, carbohydrate and protein. The small quantity of organic acid adds but very little to the heat-producing power of milk. The caloric value of cow's milk most generally accepted are those of Rubner(47). According to this investigator, 1,000 grams of milk yield from 622 to 690 calories. Heubner(48) uses 670 calories as the average value of cow's milk. The fuel value of human milk is given as 782 calories per thousand grams, (Schlossmann(48a)).

THE ENZYMES OF MILK

Enzymes are present in all biological fluids and, therefore, to be expected in milk. The source of these enzymes is the milk itself or the contaminating bacteria. Our present knowledge of the enzyme of cow's milk and of human milk may be summarized in the following table(49):

Name of Enzyme	Present in Cow's Milk Apart from Bacteria	Present in Human Milk Apart from Bacteria	Of Bacterial Origin
Protease	No	No	Yes
Lipase	Probably not	Yes	No
Lipase (salol-splitting enzyme)	No	Yes	No
Lactase	Trace?	No data	Yes
Amylase	Yes	Yes	No
Peroxidase	Yes	Inconstant	No data
Catalase	Yes	Yes	No
Reductase (direct)	No	No	Yes
Reductase (indirect)	Yes	No	No

According to this table, lipolytic activity differs in human milk and cow's milk. Spolverini(50), Luzzati and Biolchini(51), and also Marfan and Gillet(52) observed that cow's milk can split monobutyrin, but not tributyrin or oil. These workers also observed that human milk was capable of hydrolyzing monobutyrin, and Hippins(53) demonstrated that human milk could split olive oil. In 1901 Nobecourt and Merklen(54) observed that milk is capable of splitting the ester, salol, into phenol and salicylic acid. The present evidence is not quite in agreement as to the occurrence of this enzyme in cow's milk, although every investigator has detected it in human milk.

With reference to peroxidase it is interesting to note that it has always been found in cow's milk even when collected under great precautions as to sterility. Marfan and Gillet(55) found the enzyme in human colostrum, but it disappeared as the mammary gland got into its full work. Moro(56), Raudnitz(57), Jolles(58), and others failed to obtain the peroxidase reaction with human milk. This failure was not due to any inhibitory body, since the peroxidase reaction took place readily on the addition of cow's milk.

The reductases or reducing enzymes are sometimes divided into two types, the direct and indirect reductases. The former have the ability to reduce methylene blue, while the latter reduce methylene blue only in the presence of aldehyde. Milk reduces methylene blue. This reduction is due to bacteria present in milk. Bacteria-free milk does not reduce the dye to its leuco base. However, with the use of the Schardinger reagent (methylene blue-formaldehyde) reduction takes place in the absence of bacteria. As a matter of fact the formaldehyde in the reagent destroys any bacteria present. Cow's milk and human milk have no direct reducing ability. Schardinger(59), in 1902, published his first paper on the reducing properties of cow's milk. He demonstrated that milk quite fresh did not reduce methylene blue unless formaldehyde was added. The indirect reductase as determined by the Schardinger procedure was found to be absent in human milk by Rullmann(60), Smidt(61), Koning(62), and Sassenhagen(63).

THE INORGANIC ELEMENTS OF MILK

Cow's milk has a higher content of inorganic elements than human milk. The ash of the former is about 0.6 to 0.7 per cent, while the ash of the latter averages only 0.2 to 0.3 per cent. The percentage of the individual components of the ash is given below.

Taking 600 to 700 milligrams as the ash content of 100 grams of milk, and 200 to 300 milligrams as that of an equal amount of human milk, we may calculate the quantity in milligrams of the various components. The result is tabulated below:

Ash Components in 100 Grams of Milk

	Woman's Milk milligrams	Cow's Milk milligrams
CaO	46.6-69.9	141.0-164.5
MgO	7.4-11.1	16.8- 19.6
P_2O_5	32.2-49.8	159.0-185.5
Na_2O	14.4-21.6	43.2- 50.4
K_2O	56.6-84.9	149.4-174.3
Cl	33.0-49.5	81.6- 95.2

Calcium is found in milk in the forms of salts, chiefly as the phosphate. Part of the calcium phosphate is held in combination in caseinogen.

	Woman's Milk	Cow's Milk	Goat's Milk
Total Salts	0.3	0.9	0.9
Phosphates	0.19	0.58	0.31
Calcium Chloride	0.059	0.119	0.115
Calcium Phosphate	0.000	0.175	0.154

Cow's milk is richer in phosphorus than human milk. Hess and Helman(38) find that the total phosphorus of cow's milk is on the average four times as high as that of human milk. Phosphorus appears in combination with caseinogen, in the form of free phosphate, and in phospholipins. According to Siegfried(64), 6 per cent of the total phosphorus is in cow's milk, and 41.5 per cent in human milk is held in combination in caseinogen. Human milk contains relatively little inorganic phosphorus. Three-fourths of the phosphorus of human milk is held in organic combination, while one-fourth of the phosphorus in cow's milk is so held.

With reference to the inorganic elements we must not overlook the important fact that milk contains minute quantities of iodine, fluorine, iron, manganese, copper, and zinc.

According to Soxhlet(65), human milk yields 1.6 milligrams of ferric oxide (Fe_2O_3) or 1.12 milligrams of elemental iron per liter. Bahrdt and Edelstein(66) claim 1.77 milligrams of ferric oxide or 123.9 milligrams as the iron content. Nottbohm and Dorr(67) determined the iron content of cow's milk to be 0.3 to 0.7 milligrams of ferric oxide per liter, or 0.2 to 0.4 milligrams of iron. Human milk is, therefore, very much richer in iron than cow's milk.

Analyses have revealed the fact that more iron is laid up in the organs of the fetus, especially the liver, than is necessary for biologic purposes. Bunge(68), in his classical experiments dealing with iron, has proven that the amount of iron contained in a new-born is greatest at the time of birth, and decreases from day to day until it reaches a minimum at the end of the period of lactation, increasing immediately as the animal changes to a food richer in iron. The mother provides her young with sufficient iron before birth. In the case of some species, like the guinea pig, however, there is no provision made for storing iron for the animal very soon after birth begins to feed on green fodder, which is rich in iron.

By reason of its ability to store iron while in utero the infant can afford to lose more iron than it takes in. On cow's milk the infant ingests less iron than on human milk, and the store of iron is liable to be more readily depleted. Anemia and retardation of growth are the result of early depletion of iron. The iron stores of the suckling plus the amount of iron in the milk are, towards the end of the period of lactation, not sufficient for the formation of the required amount of hemoglobin.

An infant subsisting on cow's milk gets less iron than when fed on the breast. Furthermore, Krasnogorsky(69) has demonstrated the immense superiority of the milk of the same species in reference to the power of absorption and retention of iron. In view of these facts it is very undesirable to restrict the infant to mother's milk much longer than the ordinary period of lactation, for the infant at the end of that time is no longer getting its required amount of iron. Due to the low iron content of cow's milk it is highly necessary to make good very early the deficiency in iron. It is not out of place to mention here the fact that iron is retained in larger quantities when vitamins are adequate in food than when they are deficient.

Some elements, like manganese, copper and zinc, are present in milk in minute amounts. We are as yet not fully aware of their significance in the animal economy, but their regular occurrence argues for some definite function, probably that of catalysis. Bertrand(70) observed that cow's milk contained 0.50 mg. of copper per kilo. Supplee and Bellis(71) found 0.521 mg. of copper in 23 samples of cow's milk, irrespective of the rations which the cows consumed. Hess, Supplee and Bellis(72) state that the copper content of the milk of woman is about the same as that of the cow. In raw cow's milk they found 0.55 mg. of copper per liter, while in samples of commercially pasteurized milk they obtained 0.6, 0.7, and 0.6 mg. per liter. Two samples of woman's milk yielded 0.4 mg. and 0.61 mg. of copper per liter. Zinc is more abundant in human milk than in cow's milk. In the former it occurs to the extent of 5.7 to 13.8 mgs. per kilo, while in the latter it is found to the amount of 3.6 to 5.6 mgs. per kilo. The quantity in either of the milks is greatest in the early stages of lactation(72a).

THE IONIC CONCENTRATION OF MILK

The freshly drawn milk of carnivorous animals is, as a rule, acid in reaction, probably due to acid phosphates and the presence of CO_2 in solution. Human milk and that of most of the herbivora tend to be slightly alkaline. The pH value of fresh cow's milk ranges between 6.5 and 6.8, while fresh mother's milk has a pH lying between 7.1 and 7.6.

The electrical conductivity(73) of cow's milk is 43.8×10^{-4}; that of woman's milk is 22.6×10^{-4}. In other words 58 per cent of the molecules in cow's milk are dissociated, and 26 per cent in woman's milk.

It is interesting to note that the pH of the feces of infants nourished on cow's milk is about 8.0, while that feces the infant on the breast is about pH 5.0. While the intestinal excretion in the case of infants on cow's milk is alkaline, the urinary elimination is more acid. Breast-fed infants excrete less acid through the renal tract than those living on cow's milk(74).

Average Acid Excretion	0.1 Normal Acid
Breast-fed infant	40 c. c.
Cow milk-fed infant	250 c. c.

THE ACID-COMBINING POWER OF MILK

Milk contains buffer substances, that is, compounds capable of uniting with considerable quantities of acid or alkali without undergoing appreciable change in its actual acidity or alkalinity, or in its hydrogen ion concentration. The chief buffer material in milk are the proteins, especially caseinogen, and the phosphates. Cow's milk is richer than woman's milk in the proteins, especially caseinogen, and in phosphates. Clark(75) and others have proven experimentally that cow's milk contains more buffers than mother's milk. A concrete example will illustrate the point at hand(76). The addition of 30 c. c. of deci-normal hydrochloric acid to 100 c. c. of cow's milk results in a comparatively slight change in the H-ion concentration (from pH 6.6 to pH 5.85). The same quantity of acid added to human milk changes the H-ion concentration to a much greater degree (from pH 6.9 to pH 3.4). To bring 10 c. c. of cow's milk to pH 5.0, 55 c. c. of decinormal acid must be added, while in the case of woman's milk only 18 c. c. are required. When cow's milk is fed to an infant, a good part of the gastric acid unites with the buffers present in the food. Too small a quantity of free hydrochloric acid is left to carry on the work of digestion in the most efficient manner, and to maintain properly other functions devolving upon the presence of free acid in the gastric contents.

(To be continued)

DEMONSTRATION OF A NEW METHOD OF DILATATION OF THE ESOPHAGUS IN CARDIOSPASM.

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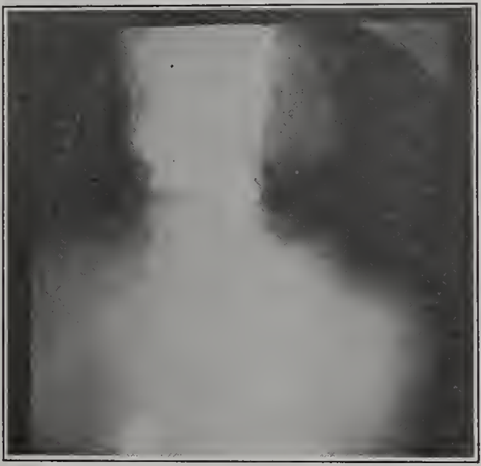
I shall present for demonstration a case of cardiospasm. The title I have chosen is perhaps an exaggeration. It is not really a new method of dilating the esophagus, but a slight modification of an old method. In connection with it, I want to present this case of cardiospasm and discuss a few points in connection with that condition.

Cardiospasm is a disease which is comparatively rare. At the same time, it is undoubtedly much more frequent than generally supposed. Many of these cases are diagnosed after a number of years of symptoms which have been attributed to something else. That was true in this particular case.

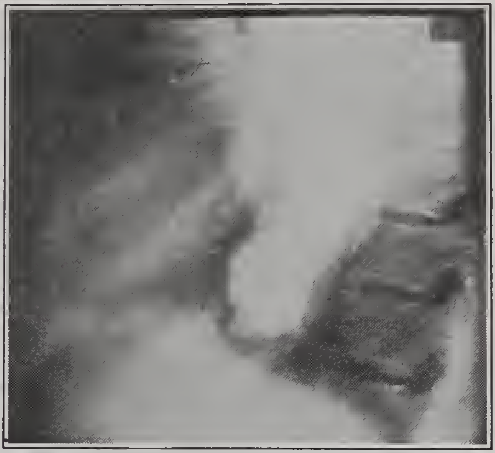
The cause of cardiospasm is not definitely known. A great many theories have been presented. Kinking of the esophagus, congenital anomaly, and nerve anomaly in which there is supposed to be a degeneration of inhibitory fibres of the pneumogastric, and inflammation of the esophagus are the chief causes assigned to cardiospasm.



Slide 1. The original condition of the cardiospasm one hour after taking a barium meal. Note the extremely narrow stricture and the dilated esophagus. The stomach is partially filled with barium that trickled through.

Primarily, the pathology of the condition is a constriction at the cardiac orifice, which in primary cardiospasm is supposed to be due simply to a spastic muscle, or a disproportion between the sphincter and the constricting muscles above. Associated with it, even in cases supposed to be essentially cardiospasm, there are usually changes in the mucus membrane—sometimes ulceration or thickening of the mucosa, other times atrophy of the mucosa to a paper like thinness. Above the spincter there is more or less dilatation of the esophagus, and inflammatory changes due to decomposition of food retained in it.

The course of cardiospasm is generally a long one. It persists through a number of years. Sometimes it starts in childhood. It is generally marked with remissions and exacerbations. The patient may go along comfortably for months and then have a siege of stomach trouble. Perhaps for that reason it is frequently overlooked. The period of exacerbation followed by a period of improvement often leads to the diagnosis of some other type of stomach trouble. It is usually considered a stomach condition rather than trouble in the esophagus.



Slide 2. Lateral view giving a better indication of the extensive dilation of the esophagus.

This man has had a typical history in that respect. The diagnosis is made usually with the x-ray. A great many of these cases will be overlooked until there is a proper x-ray examination. They are frequently overlooked even after an x-ray examination has been made. It is often the case that a gastro-intestinal x-ray examination is made without proper observation of the esophagus. Every time a patient is x-rayed, there should be a fluoroscopic examination of the esophagus during the swallowing of the barium meal. It is only in that way in many cases cardiospasm can be diagnosed.

In this particular patient, his trouble began at least twelve years ago with stomach trouble. He was in England at that time and had a long siege of stomach trouble extending over a year or two. During the latter end of that period he suffered an injury. A horse fell on him. It is probable that had nothing to do with his cardiospasm, because his symptoms antedated that accident. He had stomach trouble of such severity that a prominent surgeon operated on him; and the hospital report shows he had an appendectomy. This operation was intended to be purely exploratory, but a suspicious appendix was found and removed.

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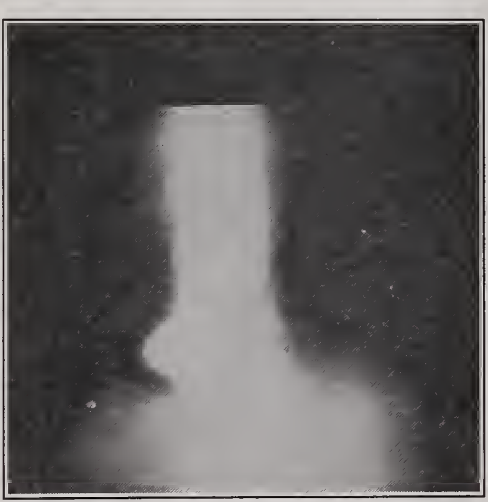
*From Research Dep't Lincoln General Hospital.

His symptoms continued exactly the same after the operation for a year, and gradually became less marked. Since that time he has had a series of attacks attributed to stomach disturbance.

About a year and a half ago I saw him during a course of influenza, associated with cough. He had a chronic cough lasting several weeks. Following that, he was a long time in recuperating. He had nausea and loss of appetite. He could eat little without feeling pressure. Those were about the same symptoms he had had at other times with his attacks of stomach trouble. His cough at that time was so pronounced his chest was examined with the x-ray and there were found masses along the side of the shadow of the heart and aorta. They were interpreted by me and by a competent x-ray man, as enlarged peribronchial glands. Perhaps they were, but the subsequent history has led me to believe he was having an attack of cardiospasm, and I think these shadows were due to a dilated filled esophagus.

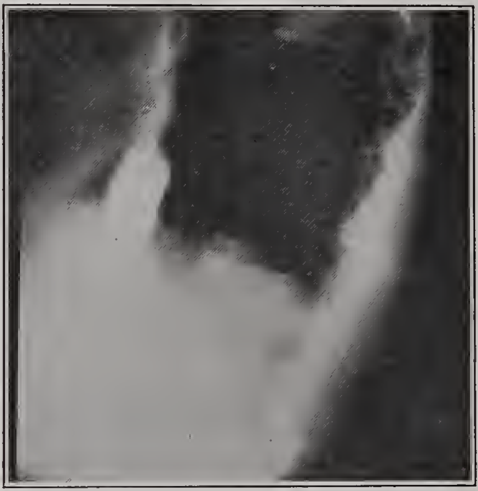


Slide 3. This shows the Barnes' bag in the cardiac orifice after it is dilated. You can see some advantages of the Barnes' bag. In the first place, the apparatus which is more frequently used is of very thin rubber. If you take such an apparatus and expand it against a constricted area, you can cause a lot of dilatation on each side without having much dilation right at the stricture.

Another advantage of this violin-shaped bag is, that after it is dilated it will not easily slip either way—into the stomach or back into the esophagus.

Then he gradually improved. This winter he suffered another attack of loss of appetite and general run-down condition. He was not vomiting. He has not had very much vomiting except early in the course of this disease.

At this time we ran through a gastro-intestinal x-ray, observing the barium as it went through the esophagus, and found what had undoubtedly been causing the trouble for a long time. At the juncture of the stomach and esophagus there is for a distance of an inch or so a very marked constriction that looks like a thread, and the esophagus was very much dilated above this point. It was impossible to pass the stomach tube into the stomach, and at first it was impossible to get the smallest sized tips of the esophageal dilator into the cardiac orifice.



Slide 4. This is a lateral view of the bag in the esophagus.

After irrigating the esophagus for several days and restricting the diet to water, it was possible to pass a small sized dilator through the cardiac orifice, and subsequently larger dilator were passed. At the end of a week it was possible to get a stomach tube through. I washed the esophagus each day through the stomach tube. A week had passed before I had cleared the esophagus of all remnants of food. It was irrigated until the water came clear, and the next day we still found decomposed food particles.

I believe irrigation of the esophagus for quite a period of time in cases of cardiospasms is important, because the esophagus is inflammed, and by this irrigation through the stomach tube, you keep the esophagus empty and in favorable condition for healing, which relaxes the spasm.

In order to secure a more complete dilatation than was possible even with the largest sized tube, I employed a method which is original, so far as I know. It has nothing very important about it, I think, except the particular instrument which I use—a rubber bag such as is used for dilatation of the cervix in cases where it is necessary to bring on a premature labor. It is a Barnes' bag. I used a violin-shaped Barnes' bag; passed it into the stomach, and then under the fluoroscope, after injecting some barium into it so that it was visible, I pulled it back to the point where I knew it was in the cardiac sphincter, and then reinjected until it had expanded and stretched the sphincter as much as he could stand. I left it there an hour each day for three weeks. Later I inserted the bag and dilated the sphincter at increasingly long intervals.

Slide 5. The Barnes' bag with the side-pocket for the introducer.

The treatment of cardiospasm is certainly unsatisfactory. Any form of dilatation is not permanently curative. However there is no other well recommended method of dealing directly with the cause of cardiospasm at the present time. Dilatations done through a gastrostomy are probably no more effective than dilatation by this method.

The Barnes' bag has a small pocket on the side for the reception of dressing forceps to facilitate its introduction. I utilize this pocket for reception of a small olive-tipped flexible esophageal dilator. With that I pass it down the esophagus and into the stomach. Moderate difficulty is experienced at the narrow point in the upper end of the esophagus and again at the cardiac orifice. Of course, it can only be used after the sphincter has been previously dilated to a considerable extent with increasing sizes of the olive-tipped bougie. It should be remembered that tearing of the esophagus has occurred from injudicious force in dilating a bag, and while dilating it care must be exercised to prevent undue force.

After the bag has entered the stomach the introducer is withdrawn, the bag is partially filled with barium and under fluoroscopic observation it is gently withdrawn until its narrow portion is held by the sphincter and its expanded ends lie in the esophagus and stomach respectively. It is then further injected until the discomfort of the patient indicates the limit of stretching that is advisable. The bag is then held in situ for one hour, after which its contents are released and it is withdrawn. This is repeated daily until reasonably permanent dilation has occurred. The patient reported herein gained 20 pounds in six weeks.

TREATMENT OF APPENDICITIS BY X-RAY*

W. L. Ross, M. D., Omaha, Nebr.

In the following remarks I will:

Firstly, state some well demonstrated clinical effects of the Roentgen Rays on the tissues of the body.

Secondly, call attention to the anatomical lymphoid structure of the Appendix.

Firstly: Some of the effects of the x-ray other than to kill cancerous cells are:

To destroy lymphoid cells.

To relieve pain.

To relax spastic muscular action.

Secondly: Is the Appendix of such lymphoid structure as to warrant the application of x-ray in appendicitis? The appendix as described by the W. G. Davis Applied Anatomy, page 414, has three sets of lymph capillaries, viz:

1. A superficial or subperitoneal set.
2. Another set between the sub-mucosa and muscular layers.
3. A deep set in the mucosa around the glands of Lieberkuhn.

Doctor E. H. Skinner, in his concluding remarks in his manuscript on "The Roentgenology of Appendiceal Obliteration", makes the following statement:

1. The appendix is a functionating organ.
2. It is a lymphoid structure.
3. It receives and expels colonic contents normally during childhood and adolescence.
4. It proceeds to physiologic obliteration in adult life.
5. This obliteration is normally accomplished at about the age of 30.

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*Read before Nebraska State Medical Association, May 14, 1925.

For convenience of discourse I will speak of two types of the diseased appendix.

Type 1. The chronically diseased appendix with exacerbations of pain and tenderness at short or wide intervals.

Type 2. The acutely infected appendix.

Type 1 is characterized by more or less dull pain with an occasional exacerbation of symptoms which may or may not compel him to take to bed. Tenderness to pressure over the appendix can be elicited at all times during the quiescent period. The clinical history generally reveals a disturbed condition of the system, similar to that of local foci of infection in other parts of the body. Clinically, the effects of the x-rays in this type of case are to relieve the pain and tenderness, also, to relieve the spastic contraction of the caecal orifice and to allow drainage to take place into the caecum. By destruction of the lymphoid tissue of the appendix, atrophy and obliteration of the lumen of the appendix takes place and the patient is relieved permanently. The following case illustrates type 1:

Mrs. J. B., age 35, married, consulted me on July 9, 1915, complaining of dull pain in the appendix region. Pain is constant and does not move about. Either riding or long walking aggravates the pain. She has a disturbed condition of the stomach and has lassitude most of the time. She is constipated. She occasionally has an afternoon temperature. She is tender to pressure over the appendix.

I commenced Roentgen Ray treatment. From July 9, 1915 to October 6, 1915, she was given thirteen treatments. At the end of this time she was free of all pain and tenderness in the appendix region, and she has since remained free of any appendix trouble.

Type 2: I have always commenced treatment of this type with more or less fear and trembling, but quick and marked relief of pain and tenderness has uniformly been the result in all my cases. The following case illustrates the second type, that of acute infective appendicitis:

Mr. E. N., age 17, came to my office, April 15, 1922. His chief complaint was marked pain and tenderness in the appendix region. Pain had commenced April 13th and had grown worse. Pain was continuous. Patient felt weak and walking aggravated the pain. He could not stand erect. He had a loss of appetite but had not vomited. He had been confined to his bed from 10 a. m., April 13th, until April 15th, when he came to my office. The trip had made the pain much worse. Patient looked toxic and very sick.

Temp.—96½. Pulse—60. Resp.—16. Tongue was coated. Physical examination revealed a board-like condition of the right abdominal parieties. Slight pressure over the appendix increased the pain. Blood count showed:

Red blood cells	5,704,000
White blood cells	15,400
Polymorphonuclears	82%

At 12:30 p. m., I gave him an x-ray exposure of 5 milliamperes, 76 kilovolts or an 8 inch back up, 6 millimeters of filter, 13 inch skin distance for 8 minutes. He then returned home. At 8 p. m., the same day, I visited him. He was lying quietly in bed. Pain was much less. That night he slept from 10 p. m., until 5 a. m. The next day, April 16th, at 8:30 a. m., he came into my office, walking erect and with but very little pain. Tenderness to pressure was markedly less. He was given another exposure, the same technique as previously given. At 8:30 that evening I visited him again. He was quite free from pain except when he moved about in bed.

April 17th, he again came for treatment. He suffered but little pain while riding in the automobile. He looked less toxic but complained of feeling weak. The board-like condition of abdomen was markedly less. He said he had very little pain and could walk without pain.

Blood count showed:

Red blood cells	6,232,000
White blood cells	9,600
Polymorphonuclears	75.3%

April 18, at 2 p. m., he came again to the office. He said he did not feel any pain. Deep pressure elicited some tenderness. He did not look toxic and his color was normal. He felt hungry and did not complain of feeling weak. April 19, at 11:30 a. m., patient came to my office. He had slept good the night before. The trip to the office caused no increased pain. Walking did not cause pain. At times he had a dull pain but it lasted only a minute. There was some tenderness to deep pressure. He could bend over and touch his shoe while sitting and without pain.

Temp.—97.8. Pulse—56. Resp.—16. Patient is very hungry.

Blood count:

Red blood cells	6,304,000
White blood cells	8,800
Polymorphonuclears	65%

X-ray treatment was given. Following this he was given two treatments on alternate days. Then, two more treatments with a 10 days' interval. On May 13th, he was symptom free. He then went to a ranch in Montana and participated in the usual activities of ranch work. He was last seen August 26, 1924, and was well.

I have treated in all 65 cases since 1914. 46 of the chronically diseased type and 19 of the acutely infected type. Of this number, seven have since been operated upon.

One of these was the chronically diseased appendix. Only four treatments were taken, although she remained symptom free for 17 months. At this time vague pains were felt. I removed the appendix. It was pale in color and smaller than common. Not enough x-rays had been given to completely atrophy the appendix.

The second case of this type joined the army 13 days after his last treatment. He was symptom free, but was required to have his appendix removed.

The third case of this type I operated 21 days after the last treatment. She was symptom-free but her home was in the mountains of Arizona far removed from hospitals and her husband insisted that she have her appendix removed before leaving Omaha. This appendix was pale in color and about ½ normal size. .

The fourth case was of type 2, or the acutely infected appendix. I removed this appendix 13 days after the last treatment. Patient was symptom free, but was going to make an extended trip to the northwest, and at my suggestion I removed the appendix. The sections made show a marked narrowing of the lumen of the appendix.

The three other cases were of the chronic type. None of them had taken more than four treatments, and one had taken only two. These were later operated upon but had passed from my care and I have no record of their condition at operation.

SUMMARIZING:

a. With proper dosage the pain of appendicitis can be quickly relieved.

b. Spastic contraction of the caecal orifice is relieved and drainage of the appendix into the caecum established.

c. The lymphoid structure of the appendix can be destroyed and atrophy of the appendix produced.

d. It is necessary to give treatment every day until the pain and tenderness have been relieved. After the pain and tenderness have been relieved, several treatments, from two to ten day intervals should be given to insure atrophy of the appendix.

CONCLUSION:

When there exists a diseased condition of any organ of the body that is rich in lymphoid cells, is it not reasonable to state that the x-ray is the treatment of election?

ACRODYNIA

Lothar F. Egen, M. D., Hastings, Nebr.

I am reporting a case of acrodynia which is of interest in confirming the observations of Rodda of Minneapolis that acrodynia depends on some form of focal infection.

Delma W. — 8 years of age, was brought to me in April, 1925, complaining of redness and swelling of both hands that had started in Dec., 1924, and gradually became worse. At the time I saw him he was unable to go anywhere without a basin or bucket of cold water to put his hands in, as otherwise he could not endure the burning sensation which must have been extreme.

He also had to get up at night every few hours to soak his hands in cold water. School was out of the question as he could not sit still and was developing, according to his father, "into kind of an idiot".

Examination showed a fairly well nourished boy about 8 years old, of very stupid appearance with his eyes half closed. He refused to look at a flash light as it hurt his eyes. The left nostril was blocked by an enlarged turbinate around which creamy pus exuded. His tonsils were large and full of infected crypts.

Lungs, heart, abdomen, etc., were negative. Urinalysis was negative. Haemo 75%, red cells 3,800,000, white cells 7,000, with relative lymphocytosis. The Wassermann also proved negative.

Both hands were of a dark red color extending about 1 inch above the wrists. They were hot to the touch and very sensative and had numerous small blebs and pustules with a few fissures on the palmer surface.

The feet also were slightly reddened and tender but did not give him much trouble.

He had been previously treated for eczema with no improvement and then for pellegra but the condition was gradually getting worse and the father stated that the boy could not rest for more than a half hour without crying for cold water, which was becoming a nuisance as they could not send him to school or go anywhere in their car without taking along the bucket for cold water.

The combination of symetrical erythema of a severe grade, plus photophobia and a severe focal infection seemed to fit Weston's description of acrodynia, published in Arch. of Pediatrics, Sept., 1920, so the boy was referred to nose and throat surgeon who removed tonsils and removed turbinate, no local treatment being used on the hands. Fourteen days later this disturbing and painful affliction disappeared entirely. The boy entered school in Sept., and is having no trouble either mentally or physically, since.

QUACTITIONERS' FEES

Quactitioners charge their victims as much as good doctors ask of patients who can afford to pay. The quactitioners' fee schedule is based upon the commercial policy of the famous glassware merchant who opened a diamond store. He said, "My diamonds, to the untrained eye, appear to have the same purity, the same weight, and the same sparkle as the genuine article, and, in order to make the imitation perfect, I sell them for exactly the same price".—Selected.

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ROSTER OF OFFICERS

	Term Expires
Dr. H. J. Lehnhoff, Lincoln, President	1926
Dr. E. O. Weber, Wahoo, Vice President	1926
Dr. R. B. Adams, Lincoln, Secretary-Treasurer	1927
Dr. W. P. Wherry, Omaha, Librarian	1927

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DELEGATES TO A. M. A.

Dr. A. D. Dunn, Omaha	1927
Dr. R. W. Fouts, Omaha	1926

DELEGATES, COUNCIL ON MEDICAL EDUCATION, A. M. A.

Dr. J. S. Welch, Lincoln	1926

MEDICO-LEGAL DEFENSE COMMITTEE

Dr. A. S. v. Mansfelde, Ashland, Chairman	1927
Dr. Czar C. Johnson, Lincoln	1928
Dr. R. B. Adams, Lincoln, Secretary	1927

Note: In case of suit notify secretary at once.

THE OMAHA-DOUGLAS COUNTY MEDICAL SOCIETY FUNCTIONS

The organized profession of Omaha has fostered a constructive program of far-reaching importance by appropriating money for 110 subscriptions to Hygeia to be sent to every school, public and parochial, in Douglas county. Other organizations would do well to follow this example.

Copy of letter of transmittal follows:

> "The council of the Omaha-Douglas County Medical society, with authority from the society, has voted to defray the expenses of a subscription to "Hygeia" for each school in the city. This monthly magazine, as you probably know, is published by the American Medical Association.
>
> "It is the hope of the council that this publication will be accepted in the spirit in which it is given, which is best expressed in the terms used by the American Medical Association in stating the object of the Journal, i. e. the advancement of medical science and education of the public regarding health and its attainments."

The Society has also organized propaganda work looking toward a modification of the income tax rulings, or rather a modification of the law so as to allow physicians to deduct expenses incurred in attending medical scientific meetings and in postgraduate study. The rulings of the Income Tax Bureau have been adverse to physicians in this matter, although allowing similar deductions for travel and investigation to commercial organizations.

Every physician in Nebraska who has not already done so, should write letters to the senators and representatives in congress from this state urging that specific legislation be passed to exempt the medical profession and place it on an equal basis with other business. (See correspondence page 43).

An appeal has also been made in behalf of the Omaha Community chest. The medical profession is urged to subscribe as generously as possible to this fund, and the appeal says in effect that it is imperative, that as a professional group, medical doctors be not subjected to the criticism of not having discharged their part in a community responsibility.

CALL FOR PAPERS AND ANNUAL DUES

All physicians who wish to read papers at the next meeting of The Nebraska State Medical Association, will please send names and titles to the office of the Secretary, Center McKinley Building, Lincoln, Nebraska.

The annual dues of the Association are now payable. Send $8.00 plus the amount of your County Society dues to the Secretary of your County Society. —R. B. Adams, Sec'y.

YOUR PRESIDENT FOR 1926

Dr. Henry J. Lehnhoff, Lincoln, president of the Nebraska State Medical Association for 1926, is the first native son of Nebraska, elected to this office. He was born in 1871 and reared on a farm in Cass county. During adolescence he attended Weeping Water Academy and the Nebraska State University, graduating from the latter in 1897. He then entered the Northwestern University Medical School, became an interne in St. Luke's hospital during his senior year, and was graduated in medicine in 1901. He has been in practice in Lincoln since 1902. He has taken postgraduate work in different medical centers in this country and some years ago spent four months in Vienna and some time in London. During recent years he has devoted himself to internal medicine, principally, diagnosis. During 1923-24 he was president of the Missouri Valley Medical Society. For a number of years he has been a member of the State Board of Medical Examiners and its secretary.

Owing to a confining illness, from which he is gradually convalescing, curtailing present activities, Dr. Lehnhoff has been excused from giving the customary greeting to the profession, through the Nebraska State Medical Journal.

THE NOVEMBER CONFERENCE AT A. M. A. HEADQUARTERS

Attendance at the conference of secretaries and editors of constituent state medical associations is always an inspiration and an education to those so favored. Your secretary and your editor were privileged to attend the annual conference at A. M. A. Headquarters, Chicago, November 20th and 21st.

The personnel of these conferences consists of the secretaries and the editors of state medical associations, the executive officers of the A. M. A. and a few other persons invited for special reasons.

The movement most stressed at the meeting this year was periodic health examinations. President W. D. Haggard of the A. M. A., stressed this movement in his address and Dr. John E. Jennings, President of the Medical Society of Kings County (Brooklyn), devoted his address to this subject. This society is foremost in the movement and Dr. Jennings gave in considerable detail the working of the plan. Dr. Charles Elliott, Chicago, gave an actual clinical demonstration on how a health examination should be conducted. Periodic health examination is one of the coming things and it is up to the medical profession to take up the movement; first educate its own members to make these examinations thorough as they should be made and then educate the public to the necessity of having the examinations made.

In regard to the education of the public it was brought out that we should: (1) Teach single standard medical education. (2) Stress periodic health examinations. (3) Get a working cooperation with Dentistry. (4) Hold back State Medicine by county and state societies functioning fully. (5) Organize team work in the community looking toward public health through women's clubs, etc.

The organization of Public Health Leagues in every state was much favored. Kentucky's Pubilc Health League consists of representatives of all Welfare organizations in the state and is functioning perfectly says Dr. Arthur McCormack, secretary of the state board of health.

The education of the public is of more importance than fighting cults or villifying cults.

The dictum that the practice of medicine is a craft like any other, subject to the same economic laws, and that there is danger that it be over-standardized, found much favor with the conference.

Dr. W. E. McVey, editor of the Journal of the Kansas Medical Society, brought out the fact in a paper that the relation of the constituent state medical associations and the American Medical Association were not as close as they should be and suggested that there should be councilor districts of state associations within the A. M. A. In the discussion of this paper your editor had the temerity to suggest that no general practitioner, certainly no country doctor, had ever been a member of the board of trustees of the A. M. A. He was promptly squelched, by Dr. Olin West, secretary A. M. A., but not convinced by the assertion that Dr. Frank Billings, Chicago, until recently a trustee, was a general practitioner.

A publicity director was recommended at State meetings as a go-between of the State association and the press. This appeals to the writer as a very important thing, for the Nebraska association annual meetings have not been given the fullest publicity for many years while cultist meetings occupy columns of space in the press.

A PHYSICIANS' HOME

The movement started in New York to establish an endowment fund for a physicians' home must appeal to every medical doctor in the land. All of us have known fellow workers in the field of medicine, who, for some reason, have approached their declining years without adequate provision for themselves and their families. Probably all of us know of concrete examples in our own state at this time. There should be enough of the brotherly spirit of cohesion in the profession to stimulate us to make provision for those fallen by the wayside.

Five per cent, or 7,000 of the 140,000 physicians in the United States, are said to be incapacitated by age and other infirmities.

The New York appeal is directed particularly to the wealthy who have been served by the medical profession. Substantial donations have been received indicating the interest of the public and profession and it is believed that the endowment fund will reach the figures desired.

The remoteness of Nebraska from New York precludes the direct interest in this state that an appeal for a near-by physicians' home would have; but in the absence of such a home in this state the members of the profession able to do so should make substantial donations to the New York institution and should encourage wealthy laymen friends to do so.

WITH DR. H. H. YOUNG AT JOHNS HOPKINS

No matter how devoted a man is to his profession, the fires of his enthusiasm need to be rekindled by contact with his fellow laborers. To visit any big clinic is inspiring but to see Dr. Young operate and feel his genial personality is really worth while.

Some men never grow old. True, they finally wear out but up till the last they are bubbling over with enthusiasm for their work. They act as if their job was worth while. They make you feel as if life was worth living and their main business in the world was to make it a better place in which to live. Some doctors act as if it was a real pleasure to explain, to point out interesting symptoms, to tell you all they have learned out of a rich and wide experience. Their motto seems to be, "They profit most who serve best."

Such a surgeon is Dr. Young working at Johns Hopkins. He needs no introduction to my readers. Twenty-five years or more he has been in the front ranks of genito-urinary surgeons of America. He does not act a day older; just as cordial; just as anxious to do this operation a little better than the last. He is sure the last word has not been said on any subject in medicine, so he keeps a keen, alert mind watching for the next step in advance.

It did me good when I shook hands with him and told him that I was from Omaha and knew Dr. Edwin Davis. He answered, "Doctor, I am extra glad to see you if you know Dr. Davis. He is the best man we ever turned out of Hopkins and he is one of the best genito-urinary surgeons in America today." Only big men are capable of talking that way about their assistants or co-workers. And the hearty way in which it was said showed it came from the inside.

Today, prostatic surgery carries two names to all surgeons—Freyer of London, who popularized the suprapubic route and Young, who developed the perineal way.

Originally, both men shelled the prostate out of its capsule and from the very nature of the operation, destroyed part of the floor of the urethra. The sphincter and openings of the vas were traumatized so that while the ultimate object of the operation was accomplished, some things were done that were undesirable.

After studying a great many cases, Young decided that what really occurred in hypertrophy of the prostate was not a great growth of the gland but a growth of adenomas just as there are fibroids in the uterus and adenomas in the breast or the thyroid gland. Then he reasoned if that is so, why take out the gland? Why not take out the new growths and leave the prostate which is very slightly enlarged and will produce no obstruction after the adenomas are removed?

Now he starts his operation as in his original work and proceeding to the point where by traction he pulls down the prostate into his field of vision, then by a lateral incision one or two cms. to the side of the urethra, he cuts into the prostate until he comes to the capsule of the tumor which he shells out now and then cutting with the scissors any bands that may bind it to the prostate proper. In this manner the floor of the urethra, the veru montanum and seminal vesicles are kept intact.

Young is operating cancer of the prostate and following his operation with radium or deep x-ray. He has many cases over the five year limit which is better than doing nothing for these unfortunate cases.

Whatever of merit there is in mercurochrome must be credited to Young. It was in his department that this salt was worked out and he is using it with supreme confidence. The stain can be washed out with Dakin's solution. He claims it penetrates deeper and is more efficient than any known antiseptic. Just now he dissolves his salt in distilled water, adds 95% alcohol and 10% acetone. The acetone dissolves all fats and soaps in the skin and enables the antiseptic to reach the bacteria.

If traveling in the east, do not fail to visit the men at Hopkins. E. C. Henry.

AMERICAN COLLEGE OF SURGEONS, SECTIONAL MEETING

A Sectional Meeting of the A. C. S. will be held at Lincoln, February 23 and 24, 1926. Some talent of well known national reputation will be brought to Lincoln for this meeting. Dry Clinics will have a prominent place in the programme and there will also be operative work at the several hospitals. Headquarters will be at the Lincoln Hotel.

EDITORIAL PARAGRAPHS

The American Medical Association has 90,000 members.

All babies look alike and yet what wonderful possibilities; just look in the mirror!

The By-Laws read: "The Councilors shall visit each county society once each year." Have all of you done your duty?

Compared with other states reporting at the recent Chicago conference it appears that the Nebraska councilors are functioning unusually well.

Pyrosis is frequently found in persons who eat much meat, smoke much, drink much coffee, or those who are members of families inclined to have peptic ulcer.

The Nebraska State Medical Association will hereafter attempt to give $8.00 worth of service to each member. Heretofore there was not enough funds to give real service.

The Nebraska Children's Home Society, Omaha, has given advice, supervision and help to 10,000 children and has had the direct responsibility for more than 2,500 wards.

Since the annual meeting of the American Medical Association will occur at Dallas the middle of April, it is very likely that the annual meeting of the Nebraska State Medical Association will occur early in April.

A report comes from India through the Dearborn Independent that the vegetarians of India have no resistance, that their vitality is low, they become easy victims to any infection and if an operation is necessary, they nearly always die.

From about the sixteenth to the eighteenth century, dried mummy was a favorite remedy. Mummies were imported for this purpose and the business of importation attained considerable importance. Substitution was practiced even at that day.

The editor has it from the proper authority that the Women's Auxiliary of the Nebraska State Medical Association, while apparently dormant at present, will later in winter burst forth like the harvest from an incubator.

The Gorgas Memorial Institute under the leadership of Dr. Franklin H. Martin, Chicago, reports considerable progress made by a health education campaign conducted through the press during the year. It is stated that the Gorgas signed health articles reached twenty million readers.

The theory of the spontaneous explosion of mill dust has been "exploded" by the Bureau of Chemistry of the American Chemical

Society. Combustible dust will explode when mixed with the proper proportion of air and ignited by a spark or flame, according to the researches of the bureau above mentioned.

New York has 12,000 members in its state association; Nebraska, 1,200—one-tenth as many. New York state association has a budget of $160,000; Nebraska, $6,000—less than one twenty-fifth as much. Looks as if we ought to be able to stand the raise of dues from $5.00 to $8.00 to get our budget somewhere near in line with other states.

Alexis St. Martin, the unfortunate young French-Canadian whose gastric fistula furnished Dr. William Beaumont the opportunity for his classical study of gastric function, lived to be eighty-three years of age. The accident by which a part of the abdominal stomach wall was blown away by a charge of shot, occurred in 1822; he died in 1880.

Through mischance which is regrettable, the name of Dr. F. L. Frink, Newman Grove, was omitted from the published list of members of the Madison County Medical Society, in the December number. Also the address of Dr. P. H. Salter, Norfolk, is given as Pierce. Why these blunders have to happen to one's most intimate professional friends is beyond one's ken.

The publication board is sometimes confronted with the problem whether to publish or not to publish certain material offered. A recent case was that of a paper presented at the annual meeting, to the publication of which objection was made by a member of the committee on scientific work, presumably because of the heterodoxy of the paper. The editor of the Kentucky State Medical Journal, representing one of the best organized state associations, says, every paper read before a Kentucky medical society is published in the Journal for what it is worth. The policy of the Nebraska State Medical Journal is along the same line.

A question of diagnosis: A went to the cafe, took a seat at the counter, removed his artificial teeth and laid them on a soiled handkerchief by his plate and proceded to eat his breakfast. B, a young man took the seat next to A and ordered his meal. Presently, B fell from his seat to the floor unconscious and the physician who was hurriedly called found the young man lying on the floor, apparently in a fit. Hasty examination revealed the scar of an old depressed fracture of the skull. At this moment A also fell from his seat to the floor unconscious. Now, then, did B have an epileptic fit or did he have heart shock at the sight of A's masticators? What happened to A?

THE COUNTRY DOCTOR

By Charles H. Chesley

(Originally printed in the Boston Globe)

If any man upon this earth
Can win his way to Paradise,
The country doctor's works of worth
Should merit mansions in the skies.
His good deeds are not done for show,
He hides, in fact, his kindly light;
When sickness comes, he's on the go
From early morn till late at night.

If summer days are long and sweet
The doctor's job is not so bad;
He may be called at night to meet
Grim death, and comfort with the sad;
But when the winter winds blow drear,
And snow lies deep among the hills,
'Tis then his trips reach far and near
To carry help for many ills.

He starts out early in the morn,
A visit here, a visit there;
The old man with his life most gone
Smiles brighter from the doctor's care.
If any man can rest at night,
With consciousness of work well done,
The country doctor has the right—
He knows how dreams of peace are won.
Up here among the granite hills,
We're pretty healthy, as a rule;
But sometimes comes a rush of ills,
And then the doctor takes things cool.
He goes about his work with care,
His ministrations far and wide,
And people bless him everywhere,
All up and down the countryside.

If any man upon this earth
Can win his way to Paradise,
The country doctor's works of worth
Should merit mansions in the skies.
He's always ready, night or day,
To succor pain, his help to lend—
The rich and poor, the grave and gay
Are glad to count him as a friend.

THE HABIT OF ATTENDING MEDICAL MEETINGS

Presence at a meeting, hearing discussions and papers not only is of value to the beginner, but has been considered of importance to our masters, says Marcus Feingold, New Orleans (Journal A. M. A., July 11, 1925).

Naturally, not all that is transacted in every meeting is of the kind that signifies progress and betterment; some things presented may be of the kind that should be avoided and deprecated. But there is good also in listening to this kind because it teaches how to avoid the mistakes of others. Presence at meetings produces, in different members of the audience, various emotions. These emotions must apparently fall into one or more of the following subdivisions: Admiration for the subject or the speaker; feeling of one's own inferiority in having done so little; the desire to imitate that piece of work and that method; the determination not to overlook this or that in the future, and regrets at having failed to observe this and that. Attendance at meetings has often led to ties of the most fruitful and warmest friendships among medical men the world over. History of medicine contains many records of the wonderful effects of exchange of thoughts among friendly spirits, just as these medical meetings. Attendance at meetings must not be limited to those of our immediate circles. The larger the group of individuals banded together, the greater is the probability of valuable and stimulating contributions at that meeting.

The mortality of intestinal obstruction with acute symptoms is generally stated to be about 40 per cent. My opinion is that the mortality all round is nearer to 60 per cent, and yet this disgraceful state of things must in truth be largely attributed to the pernicious habit of meddlesome medication and delay. It should be remembered that just as there is a tide in the affairs of men, which, taken at the flood, leads on to fortune, so there is a time in the course of these cases within which operative interference will be attended by the most brilliant results; omit the opportunity this period offers, surgery cannot expect any triumphs while the unfortunate sufferer can only hope that death will come quickly and release him from his misery. — Sir William Taylor (Can. Med. Assn. Jour.).

INCOME TAX DEDUCTIONS—SOME POINTED CORRESPONDENCE

December 12, 1925.

Dr. F. A. Long, Editor,
Madison, Nebr.
Dear Doctor:

I am sending you a copy of a letter which we received from Senator Smoot and my answer to him. I am also enclosing you a copy of a letter received from Dr. Robert R. Hampton and a copy of my answer to him.

If you can see your way to give this matter some prominent place in the magazine so located that the doctors will see it quickly, with the request that they communicate to our senators and representatives, I feel that it may result in our securing this legislation.

I think it would be well to print Senator Smoot's letter, calling attention in large type to his mistake in mentioning the school teachers as receiving this exemption. I HAVE JUST CALLED THE FEDERAL DEPARTMENT HERE AND THEY ASSURE ME ABSOLUTELY THAT ALL SCHOOL TEACHERS ARE NOT REQUIRED TO PAY INCOME TAX FROM INCOME DERIVED FROM TEACHING. This shows the senator up so well as either purposely trying to mislead us and trying to hedge by inadequate excuses or else being poorly informed, and I think it should be given wide publicity.

Yours sincerely,
J. B. Potts.

Senate Chamber, Washington, D. C.,
November 14, 1925.

Dr. Earl C. Sage, Secretary,
Omaha-Douglas County Medical Society,
Omaha, Nebr.
Dear Sir:

This will acknowledge the receipt of your letter of November 11, 1925, which I shall be very glad to call to the attention of the Finance Committee when the revision of the Revenue Act is up for consideration.

I wish to say, however, that if the expense of traveling to and from medical conventions for educational purposes and expense incurred in the pursuit of post-graduate study are allowed to be deducted from the income of the physician, THE SAME THING WOULD HAVE TO APPLY TO TEACHERS OF THE COUNTRY, as well as, everyone seeking an education, and also to the progressive business man, who makes similar expenditures.

In my opinion, the decision of the Commissioner in not allowing such items as deductible is correct. The present law does not make such an exception.

Yours very truly,
(Signed) Reed Smoot.

Omaha, Nebr., December 11, 1925.

Senator Reed Smoot,
Senate Chamber,
Washington, D. C.
Dear Senator Smoot:

Dr. E. C. Sage, Secretary of the Omaha-Douglas County Medical Society, has referred your letter of November 14th to me, as I am chairman of the Income Tax Committee.

You state in your letter "that if the expense of traveling to and from medical conventions for educational purposes and expenses incurred in the pursuit of post-graduate study are allowed to be deducted from the income of the physician, the same thing would have to apply to teachers of the country, as well as, everyone seeking an education, and also to the progressive businessman, who makes similar expenditures."

I WISH TO CALL YOUR ATTENTION TO THE FACT THAT TEACHERS BELONG IN THE SAME CLASS AS SENATORS AND REPRE-

SENTATIVES AND OTHER STATE AND FEDERAL EMPLOYEES, AND ARE NOT REQUIRED TO PAY INCOME TAX.

The real gist of your argument seems to be that brains should be taxed and business should be exempted.

I also wish to call your attention to the fact that business firms do deduct the expense of their representatives attending conventions and meetings under the head of "procuring new business." This includes banking houses, automobile sales agents, automobile manufacturing concerns, engineering and mining concerns or retail stores and every other business which I have been able to investigate. In other words the physician being a professional man and having no real financial backing or interest to protect him, has had a special ruling made against him, because there is no argument as to his respective merits and benefits received from attending medical society meetings and the meetings of the ordinary business conventions. I, therefore, reiterate to you our request in previous letters that you re-consider this matter and give your support in securing this very just legislation.

Yours truly,
J. B. Potts.

Salt Lake City, Utah, Dec. 10, 1925.

Dear Doctor Potts:

After receiving your letter yesterday, I took the matter up with our past and present State Society presidents. Dr. Gibson, the present president, says that a committee took the matter, mentioned in your letter, up with Senator Smoot during a recent visit to this city. He is opposed to giving any privileges to Doctors not given to other professions or businesses. When the matter came up in Washington, engineers, school teachers, business men, cattle-men, and others asked for the same deductions and they could not give it to one without giving it to others. As a whole, I think Smoot personally feels, that the profession charges large enough fees and, therefore, they should pay for their P. G. expenses. He would, however, consider some such amendment to be applied only to Doctors whose income does not exceed $2,500.00 yearly.

I wish you would give us any information which you have showing that business houses are taking out traveling expenses to conventions, etc. We have never been able to get any evidence that would hold.

With best personal wishes,

(Signed) R. R. Hampton.

Omaha, Nebr., December 12, 1925.

Dr. Robert R. Hampton,
Salt Lake City, Utah.

Dear Doctor Hampton:

I am enclosing a letter from the Medical Society of New Mexico just to show you that the interests of the doctors is wide-spread in this matter.

In regard to the doctor's fees, in the first place this is beside the question because the physician is entitled to be paid and the deductions of his business expense is allowed by the income tax law, regardless of the percentage of profit that his business or profession makes.

Second: If we considered the fee it would have to be admitted that the charge made by the ordinary doctor is very reasonable in comparison to the charge made by business men or labor organizations. For instance, it is cheaper to call a doctor to visit a patient in the country than it would be to hire a taxicab to make a drive of equal distance taking the equal amount of time without regard to any other service rendered.

Third: The charge of the specialist is usually larger, depending to a very great extent upon his professional standing and this professional standing depends largely upon his attendance to medical societies, writing papers, etc., which is the expense for which we are asking exemption, and, therefore, is a straight case of business or professional expense expended in securing new business.

This brings me to the point at the end of your letter in regard to traveling expenses deducted by business firms. After reading your letter I called my bank and asked them how the expenses of attending bankers' conventions were handled. His answer was that this expense was paid by the bank. I then asked how this expense was carried by the bank and the answer was, it was carried under the expense item "procuring new business" and is deducted from their income under this heading. I have been assured that the expenses of the automobile men attending automobile conventions and exhibits of new models at the factory are handled in the same way.

In regard to the other classes of people who are asking this exemption; the number of conventions attended by cattle-men is small and would affect the national income very little. The same is true of engineers and incidentally if an engineer is sent by any business firm, his expense is no doubt deducted under the same heading of procuring new business as the bank ruling quoted above.

I am in receipt of a letter from Senator Smoot in which he makes a statement in regard to school teachers. They only come to about one state convention a year and consequently their deductions would be small provided they made a return. HOWEVER, SENATOR SMOOT AND THE OTHER POLITICIANS HAVE TAKEN GOOD CARE TO PROTECT THEMSELVES FROM PAYING INCOME TAX, AND HAVE TAKEN CARE OF ALL OTHER PEOPLE RECEIVING AN INCOME FROM ANY GOVERNMENT SOURCE, SO THAT SCHOOL TEACHERS ARE NOT REQUIRED TO PAY ANY INCOME TAX. IN OTHER WORDS, SENATOR SMOOT IS A PREVARICATOR OR ELSE HE IS VERY POORLY INFORMED IN REGARD TO WHAT SHOULD BE HIS PARTICULAR BUSINESS. I say this advisedly as I have just finished talking to the Internal Revenue Department here in Omaha in regard to exemptions of school teachers, and all other federal and state employees.

Yours sincerely,
J. B. Potts.

WAYSIDE GLEANINGS ON A EUROPEAN JAUNT — GERMANY

Our first objective in Germany was Cologne, reached by a half day's journey from Amsterdam in a "schnell-zug"—a limited train. A fellow passenger in our compartment proved to be a German from Frankfort. Here was opportunity for the writer to try his mongrel German dialect. Asked whether we were Amerikaner, we said "Yah". After a pause the fellow passenger said if the Amerikaner had not come over they would have won the war. The writer rejoined, "You and I could not help the war nor what happened during the war", — to which he assented and peace reigned. Approaching Utrecht we inquired about Doorn, the ex-Kaiser's domicile, and were told it was not far from Utrecht, but that Wilhelm Hohenzollern was in The Hague and Amsterdam two-thirds of the time, although supposed to be at Doorn all the time. Asked whether the monarchy was likely to come back, he said emphatically, "No", and then launched a tirade against the ex-Kaiser. He said in substance: "From the time we were children in school we were taught fealty and respect for the Kaiser; we would be lined up and with uplifted hands would swear that happen what might we would shed our last drop of blood for him and for the fatherland; but when the war turned against us, he took 60,000,000 gold marks and crossed the border into Holland, and left us to suffer. No, "das Deutche volk" will never allow the return of Wilhelm or of the monarchy. The fellow passenger was a contractor and builder; but since the war his business is ruined.

Cologne, a beautiful city of 650,000 on the lower Rhine, was under British occupation. The Dome cathedral is the finest specimen of Gothic architecture in all Europe — perhaps in all the world. An exposition celebrating one thousand years of the German Rhineland was in progress at Cologne. We visited it on a Monday afternoon (not a holiday) and found the buildings and grounds crowded. There were 142 separate departments. How a people nationally bankrupt and suffering from the war could stage such an exposition and where the populace could get the money to attend, remains to us one of the mysteries of the trip—and we are no carping critics.

We journeyed by fast passenger boat to Coblenz. Here, on withdrawal of the American troops, the French took charge. The French soldiers at this place reminded one of ragamuffins, they were so poorly clad and miserably patched. The French soldier draws 75 centimes per diem, which, with the depreciation of the franc, is about 3 cents. No wonder he is badly patched. An intimate personal social contact at Coblenz afforded opportunity for first hand information about conditions. With the coming of the rentenmark the German money became stabilized and while the wage is low and provisions high, matters are gradually getting better. People deny themselves concentrated protein foods like meat, butter and eggs, and get along just as well. Everywhere people looked well dressed and well nourished. We saw school children start on a hike and they looked as well dressed and as well nourished as our children. Undoubtedly the German people have suffered, but there was no outward sign of it along the Rhine.

We took passage for Mayence, about a hundred miles up the river, passing on the way the Mouse Tower, Bingen-on-the-Rhine and Die Lorelie. The shipping on the Rhine seemed a marvel. Barges of perhaps 500 tons capacity in groups of from 4 to 7 tied together tandem, pulled by powerful tugs, were always in sight on the river. Passenger boats of 2000 and upward capacity ply the river on hourly schedule to Mayence, the head of navigation. People travel much and apparently are happy and carefree. The watering places, Bad-Ems and Baden-Baden, have the average number of visitors, many of them Germans.

We paid our respects to Heidelberg, the river Neckar, Heidelberg Castle — saw "das fass", the old wine keg built to hold 46,000 gallons. Looking at the old buildings of Heidelberg University, one would not believe that it could be the location of so much history and so much learning.

We left Germany by the Black Forest railway, which in sixty miles passes through 38 tunnels and very much very beautiful mountain scenery and entered Switzerland at Lake Constance.

— F. A. L.

AMERICAN BOARD OF OTOLARYNGOLOGY

An examination was held by the American Board of Otolaryngology on October 19, 1925, at the Cook County Hospital, Chicago, with the following result:

Passed	120
Failed	23
Total Examined	143

The next examination will be held in Dallas, Texas, on April 19, 1926. Applications may be secured from the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

ENSWORTH MEDICAL COLLEGE ALUMNI

The Alumni Association of the Ensworth Medical College was formed in Kansas City in October, with a membership of forty-three. Dr. Charles Geiger of St. Joseph was elected president of the association. The writer is very anxious to have enrolled all the graduates of Northwestern, Central and Ensworth Medical Colleges. The dues are $1.00 per year. We hope to have 100 in attendance at the meeting next fall. All graduates of the three colleges mentioned above are urged to send in their names to the secretary for enrollment at once. Charles Wood Fassett, M. D., Secretary, 115 East Thirty-first Street, Kansas City, Missouri.

THE SOCIETIES

The regular meeting of the **Lancaster County Medical Society** was held November 3, 1925, at the Orthopedic Hospital. Dr. David C. Hilton presided.

At the call for clinical cases, Dr. J. M. Mayhew presented an autopsy report on a man past middle age who had died from extensive tertiary syphilitic lesions. The initial infection had been acquired some twenty years ago with only a minimum treatment until two years ago when the patient developed a penile granuloma for which amputation was necessary. From this time until death the patient received maximum treatment in all forms for his disease. A few days before death novarsaurol had been administered following which a very evident hemorrhagic diathesis ensued for which there seemed to be nothing of avail and the patient died seemingly because of hemorrhage. An autopsy of the liver showed an atrophic cirrhosis. There was a perforating ulcer in the lesser curvature of the stomach. The aorta showed definite syphilitic plaques especially in the abdomenal portion.

In a discussion of this case, Dr. Breuer cited the use of novarsaurol in two cases with manifest cardiac oedema. In these cases there was no renal involvement evident. Each of these cases was given one cc. with a marked reduction in the oedema.

Dr. Bryan brought out the point that if novarsaurol is enhanced by the use of ammonium chloride, success seems to be achieved more easily than if novarsaurol is used alone.

In the symposium of the evening, Dr. Flansburg rendered the first paper on the treatment of diabetes mellitus. The doctor established the contention primarily that diabetes mellitus is an incurable disease. Because of this then it becomes paramount for the doctor to educate the patient in all phases of the disease. The patient must be taught a thorough knowledge of foods in their relation to the diabetic. With the varying of foods and how their contents will avoid or establish certain conditions, further, it is necessary that the physician educate the patients to test or rather to examine their own urine both qualitatively and quantitively for sugar. It was considered that insulin is not specific in the treatment of diabetes but is a valuable adjunct in the control of diabetic manifestations.

In the discussion of this paper Dr. John Thompson brought forth a very important fact, that it is absolutely necessary for the physician to have a definite strategical plan in the treatment of the diabetic patient. Otherwise the physician should not treat this condition. In the substantiation of his remarks he cited the methods of two different clinics in this country wherein he had observed their methods of handling the disease. It is the doctor's opinion that it is not wise to starve a patient with diabetes when the patient is under control in the hospital. The patient should have his basic maintenance diet figured and be allowed to ingest such an amount of food. The doctor further elaborated on the value of the relation between blood sugar determinations and the determinations of the normal urine sugar content.

Dr. Miles Breuer spoke of the education of the patient in relation to the prophylaxis of diabetes. He drew out the fact that it is not infrequent to hear the history of diabetes in successive generations of the same family. Furthermore, that it is prone to be an increased finding in people who do excessive mental work. It is prone to occur in obese people.

Doctors Mayhew and Covey proceeded with the symposium with an autopsy report and sections of tissue from a patient who died in an evident diabetic coma. The patient had been a known diabetic under varied treatment for several years. She was in evident coma when brought into the hospital and died before treatment was of avail. The slides were instructive in that they revealed relatively normal pancreatic tissue throughout.

In the business of the evening the secretary announced that the next meeting would be given over to Dr. H. G. Wells of the University of Chicago, who would talk on "The Relations of Heredity in Cancer to the Human Species". It was moved by Dr. Hompes that Dr. Wells be entertained by a banquet at the Lincoln Hotel and that the members of the Society be privileged to bring guests. This was seconded and carried.

The regular meeting of November 21, at the Lincoln Hotel was preceded by a banquet in honor of Dr. H. G. Wells, Pathologist of the University of Chicago, who spoke on "The Relations of Heredity in Cancer to the Human Species".

The doctor established the contention that the most important thing which we have found in our study of cancer is that the resistance to cancer is greater than the tendency to have cancer. He cited the fact that the factors which make for survival in animals are always dominant over other factors, that the tendency of man to resist cancer is largely the result of heredity. In substantiation of this he brought out the fact that pioneer x-ray men almost always died of cancer from testing their tubes on their hands and in certain instances, some of these men developed cancer earlier than others. This, Doctor Wells held, showed the difference in the tendency to resist cancer by different individuals of the same species.

Because of our relatively meager knowledge of cancer, we are unable to give a very intelligent answer concerning cancer and its heredity in the human species. He elaborated on the fact that vital statistics are valueless, that a compilation of hospital records are utterly valueless for deductive purposes. It is known, however, that there are cancer families and that there are certain varied forms of cancer found in some families which could not be chance by any possibility.

Tumors which occur in animals are practically the same as those which occur in men and act in nearly the same manner. One of the reasons why so many animals seem to be free from cancer is because they do not live to an old age and we know that cancer is an old age disease. In this respect, Dr. Wells spoke of the work of Dr. Maude Slye, who has autopsy records of more than fifty thousand mice, tracing cancer through 30 to 50 generations. In their laboratory they had bred strains of mice which do not have cancer at all. Other strains in which every individual has a cancer and a third strain in which a number of generations may pass and then the cancer crop out later.

Very little is known about the heredity in man, however, he said, because of the impossibility of securing the family history of accuracy over any period of time. The only thing of value or that makes a family history look dubious is where both the father and the mother have cancer. In cases where only one individual has cancer, the chances are favorable that the offspring will not be afflicted because of the natural tendency to resistance. It was Dr. Wells' opinion that cancer would probably never become as dangerous a disease as many were prone to believe. If such is the case then by that time with our increased knowledge of heredity, we should be able to breed a race with a greater resistance to the disease.

—Arbor D. Munger, Sec.

At the regular meeting of the **Omaha-Douglas County Medical Society**, November 10, Dr. Edwin Davis read a paper on "Scientific Perineal Prostatectomy". Before the reading of the paper specimens were passed and the gauze dressings displayed. This paper was illustrated by lantern. Dr. Jonas asked how often the dressings were changed and Dr. Davis said the first dressing was removed after six or seven hours, the second at the end of 24 hours.

Discussion opened by Dr. McMartin who favored the suprapubic operation. Others taking part in this discussion were Dr. Ross, and Dr. Jonas, and Dr. Rix presented a clinical history of a case which he had attended and which Dr. Davis had operated by this method.

Dr. C. C. Tomlinson read a paper on "Ringworm" and presented several cases.

Discussion opened by Dr. Schalek and a word of commendation and appreciation of Dr. Tomlinson's efforts expressed by Dr. Aldis Johnson.

Annual meeting of the **Omaha-Douglas County Medical Society**, held Dec. 8, 1925, at the University Club.

The following officers were elected for the ensuing year: Dr. Adolph Sachs, president; Dr. Frank M. Conlin, vice-president; Dr. Earl C. Sage, Sec'y-Treas.

The following delegates were elected to the Nebraska State Medical in the following order: Dr. Warren Thompson, Dr. Floyd Clarke, Dr. A. R. Knode, Dr. H. B. Hamilton, Dr. J. M. Duncan, Dr. F. W. Heagey, Dr. J. F. Langdon.

The following seven are the alternates: Dr. H. C. Sumney, Dr. Roy Dodge, Dr. Lynn Hall, Dr. B. M. Riley, Dr. C. F. Simanek, Dr. Clarence Rubendahl, Dr. J. H. Vance.

The following Board of Censors were elected: Dr. Paul Ellis, Dr. C. A. Hull, Dr. J. H. Vance.

The annual report of the secretary-treasurer was read and approved.

The following three men were voted favorably upon as members of the Society:

Dr. Clarence F. Bantin	440 Aquila Court
Dr. F. M. Duffy	Creighton Med. College
Dr. Geo. B. Lennox	1602 North 24th

President Bliss spoke briefly on the duties of a County Medical Society, especially in relation to the public.

Dr. A. F. Jonas and Dr. H. v. W. Shulte spoke about the doctors increasing their subscriptions to the Community Chest. A special appeal had been sent by Mr. Henry Doorley, Chairman of the Community Chest. This communication was read. Dr. E. C. Henry moved that the letter be referred to the Council, and that an appropriate reply be made.

Dr. Louis Gregory Cole's scientific film on tuberculosis was then shown.

—Earl C. Sage, Sec'y-Treas.

The Cedar-Dakota-Dixon-Thurston and Wayne Counties Medical Society held its annual meeting at Emerson, November 12, 1925.

The program took the form of a "skin clinic". Dr. C. C. Tomlinsen of Omaha, very ably demonstrated and lectured on the skin cases presented by the different members of the Society and a most beneficial program was enjoyed by the twenty-five members present.

The following officers were elected for the ensuing year:

Dr. M. H Evans, Emerson, president; Dr. B. F. Gleason, Randolph, vice president; Dr. C. L. Phillips, Dixon, secretary-treasurer; Dr. J. L. Kilian, Wakefield, delegate to State Association.

The following resolution on the death of Dr. J. C. Hay was passed:

Whereas:

It has pleased an all-wise Providence to remove from our midst our honorable and esteemed brother practitioner, Dr. J. C. Hay, thereby creating a vacancy which we feel will be long felt in our councils and deliberations, therefore be it,

Resolved:

That in the death of Dr. J. C. Hay this Society loses an honorable, upright member, conscientious, fearless and unselfish in the discharge of his duties as a physician.

Resolved:

That we deeply mourn his untimely death, and in consideration of our appreciation of his true merits, be it further,

Resolved:

That a copy of these resolutions be made a part of our minutes and that a copy be sent to his wife and family, and to The Nebraska State Medical Journal.

The annual meeting of the **Fifth Councilor District Medical Society** was held at Columbus, November 17, under the direction of Dr. S. A. Preston, councilor. About forty-five physicians were present and much interest was manifested in the papers which were freely discussed. The following papers were presented: Dr. Donald Macrae, Jr., Council Bluffs, "Lung Surgery, (Hemorrhage and Foreign Bodies)"; Dr. C. C. Tomlinson, Omaha, "The Diagnosis of Eruptions on the Hands and Feet," with slides; Dr. W. R. Newmarker, Columbus, "Alleviation of Child-birth Pain by Gwathmay Synergetic Method"; Dr. A. C. Stokes, Omaha, "Further Observations of Acute Osteomyelitis", with slides; Dr. C. G. Moore, Fremont, "Modern Practice of Medicine"; Dr. Robert Schrock, Omaha, "Fractures of the Elbow", with slides.

After the banquet, attended by about forty-five, including a dozen ladies, Dr. Palmer Findley, president Nebraska State Medical Association, gave a plain talk on some of the problems before the profession and urged more active interest and greater cooperation within the organized profession. This was followed by a general discussion of much interest.

The meeting of the **Seventh Councilor District Medical Society**, deferred from October 29, to November 12, on account of condition of roads, was held at Geneva. About fifty doctors were present and it was one of the best meetings ever held. Dr. C. C. Snowden, Davenport, was elected president. The Fillmore County Medical society tendered a banquet to the visiting physicians. The program as carried out follows:

"Supervision of Child Health", H. E. Harvey, M. D., Fairbury; "Local Anaesthesia in General Surgery", A. I. McKinnon, M. D., Lincoln; "Puerperal Infection" with lantern slides, Palmer Findley, M. D., President Nebr. State Medical Association, Omaha; "Practical Methods in Diagnosis of Gastro-Intestinal Diseases", J. C. Wadell, M. D., and W. A. Rush, Beatrice.

The members of the **Phelps County Medical Society** were entertained at a dinner at the Hampton Hotel, Holdrege, December 11, by Drs. W. B. Bannister and W. M. Robertson. After the dinner Dr. W. B. Bannister gave an address on the every-day experiences of the general practitioner. Officers elected for the ensuing year are: President, Dr. S. F. Sanders, Holdrege; vice president, Dr. W. B. Bannister, Holdrege; secretary-treasurer, Dr. J. L. Magill, Holdrege; censor, Dr. W. B. Schreck, Bertrand.

—J. L. Magill, Sec.-Treas.

The **Colfax County Medical Society**, at a meeting for reorganization held at Schuyler, elected the following officers: President, Dr. F. G. Kolouch, Schuyler; vice president, Dr. P. H. McGowan, Schuyler; secretary-treasurer, Dr. W. J. Kavan, Clarkson; delegate, Dr. S. B. Koory, Schuyler; members of legislative committee, Drs. Charles Eby, Leigh and L. H. Sixta, Schuyler.

"All towns in the county were represented, and the members of the medical profession fraternized for several hours and talked shop, and they hold high hopes that the society may result in much good to the people of the county.

The members have in mind several lines of activity touching the public service, but as yet the plans have not sufficiently matured to warrant announcement."

The Clinical Orthopedic Society Meeting: One hundred orthopedists and other medical men interested in the subject held a two days' session in Nebraska, November 30 and December 1. The first day's sessions were held at the Methodist and University hospitals in Omaha, where clinics were given. A visit was made to the Convalescent Home for Crippled Children, (The Harriet Monroe Home at Benson). An executive session was held and a dinner was given at the Athletic Club after which Dr. P. D. Wilson of Harvard Medical School, Boston, and Dr. Leroy Crummer, of Omaha, spoke.

The second day's sessions were held at the Nebraska Orthopedic hospital, St. Elizabeth's hospital and the Lincoln General hospital, Lincoln. Dr. H. W. Orr and Dr. J. E. M. Thomson, Lincoln, entertained the visitors at breakfast and a luncheon was tendered them at the Lincoln Country club.

The annual session of the **Creighton University, College of Medicine, Alumni Association,** was held October 19th, 20th and 21st. One hundred and thirty-five members were present at the annual banquet held at the Hotel Fontenelle, October 20th. President Rix gave the address of welcome and a very pleasant reminiscence of the birth of the Alumni Association in 1901, of which he was the first Secretary and Treasurer. Dr. Palmer Findley of Omaha and Dr. Willis S. Lemon of the Mayo Clinic both presented very interesting programs with lantern slides. The subject of Dr. Findley's presentation was "The Defense Mechanism in Puerperal Sepsis", and Dr. Lemon's presentation was "Post Operative Pneumonia."

The result of the election of officers was as follows:

Dr. D. F. Crowley of Des Moines, Iowa, president; Dr. C. W. Hickey of Bennington, Nebr., vice-president; Dr. H. J. Jenkins of Omaha, Nebr., secretary-treasurer.

Homecoming day, Saturday the 21st, the Medical Alumni joined the other departments on the campus where the roll call of classes and barbecue were held. Following this members witnessed the football game between Blue and White and the Haskell Indians.

—H. J. Jenkins, Sec.-Treas.

HUMAN INTEREST TALES

Dr. Charles Pinckney has located at North Loup.

Dr. William A. Lusk, moved from Lamar to Trumbull.

Dr. W. C. Zulauf, formerly of Jackson, has located at Belden.

Dr. —— Philippsen, for a time located at North Loup, has moved to Exeter.

Dr. J. P. Lord was elected president of the Surgical club of Omaha, recently.

The Pioneer Memorial Hospital, Dalton, Cheyenne county, was opened in October.

Dr. Charles Philip Brown, announces the opening of offices in suite 434 Aquila Court, Omaha.

Dr. H. E. Eggers, Omaha, spoke to the Nu-Med society, Lincoln, Nov. 19, on "The Pathologist."

The Sisters of St. Catharine's Hospital tendered a banquet to the medical profession of Omaha, Nov. 28th.

The Norfolk State Hospital has 800 patients, slightly more than fifty per cent of whom are males.

Dr. Mary Bratt, of Arapahoe, a graduate of the University of Nebraska College of Medicine, 1924, has located in the home town.

The semi-annual meeting of the Nebraska Association of Medical Women was held over a dinner at the Y. W. C. A., Omaha, Nov. 28.

Dr. Bernard Kelly, formerly of Creighton, after taking a year of postgraduate work in New York City has located in Jersey City, N. J.

Dr. W. O. Henry, former Omaha surgeon, was seriously injured when his automobile collided with a street car in Los Angeles, recently.

Dr. W. A. Rush and family, Beatrice, were unfortunate participants in an auto wreck recently. Fortunately no one was seriously injured.

Dr. S. O. Harris, formerly of Gresham and Dr. C. H. Hansen, formerly of Marquette, have become associated and have opened offices at Kearney.

The need for additional hospital facilities at Falls City have become so urgent that a number of physicians are about to establish the Community hospital.

Dr. H. G. Wells, of Chicago, talked to the Lancaster County Medical society, Nov. 21st on "The Relation of Heredity in Cancer to the Human Species."

The new Blair Hospital, remodelled and enlarged by Mrs. Washburn was formally opened by a banquet to the members of the Washington County Medical Society, Nov. 24th.

Dr. and Mrs. A. D. Dunn, Omaha, have been exploring desert and oasis in the Tucson region of Arizona lately. Unless the doctor is unlike the average man he will return to talk in a strange language about the flora of the desert—mesquite and creosote bush, the chollas, the ocatilla, the bisnaga and the sahuaro.

NECROLOGY

George A. Birdsall, Fairbury, Nebr.; Rush Medical College, 1887; a pioneer physician in southern Nebraska, thirty years at Alexandria and 6 years at Fairbury, a member of the group of Drs. Potter, Birdsall and Harvey; a member of the Nebraska legislature from Thayer county in 1918; at time of death president of the Seventh Councilor District Medical Society; died from an attack of apoplexy suffered two days before, December 17, 1925, aged about 61 years.

Dr. Birdsall was a native of New York state, but was reared at Hastings and was a graduate of the Hastings High School and Hastings College. He is survived by one son, Carl, who is vice president of the Continental and Commercial National Bank of Chicago.

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TREATMENT OF THE DIFFERENT TYPES OF TACHYCARDIA.

Arthur L. Smith, A. B., M. D., F. A. C. P., Lincoln, Nebraska.

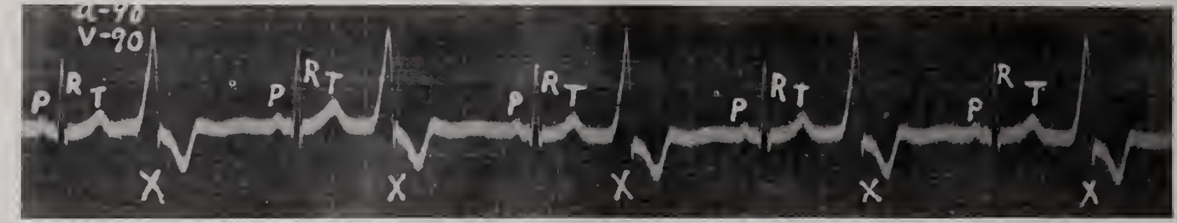
In recent years, by means of the cardiograph, we have learned to differentiate the many different types of tachycardias. Some tachycardias are manifested in the pulse, some only in the ventricles and others only in the auricles. The two former can often be recognized but not always differentiated clinically while the latter type is only discovered in the cardiogram. Some tachycardias are a purely physiologic reaction, some are of grave pathologic import, while others are symptoms of cardiac or extracardiac abnormalities. The treatment of tachycardias, therefore, depends upon the accurate recognition of the type and the discovery of all physical or functional abnormalities. The type of tachycardia is only accurately recognized in the cardiogram while the associated pathology, whether cardiac or extracardiac, is discovered only by a complete physical examination aided by the necessary laboratory methods.

TYPES OF TACHYCARDIAS(1)

Sinus tachycardia takes its origin in the sino-auricular node which is near the mouth of the superior vena cava in the right auricle. Not every tachycardia arising here is pathologic, but on the contrary is usually a physiologic reaction as long as it is proportionate to the condition that is causing it. It can be divided into two groups:

1. Sinus tachycardia of cardiac origin.
2. Sinus tachycardia of extracardiac origin.

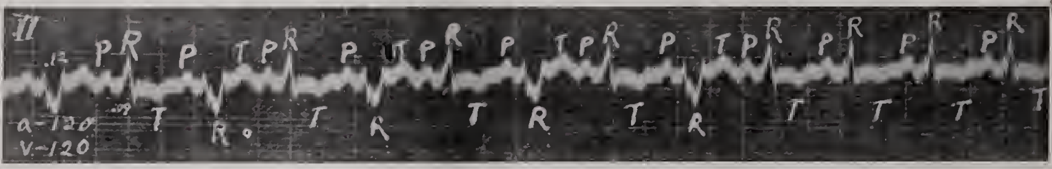
The Sinus Tachycardia of Cardiac Origin is one in which the neuro-muscular tissue of the sino-auricular node is stimulated directly. Substances taken internally because of an appealing taste as tea, coffee, and tobacco are etiological factors in this class. In infectious diseases, toxins are the cause of the acceleration. In this latter class tuberculous toxic tachycardia is very important to remember as it is often the first symptom the patient notices and is the cause of his call on the physician. The classical example of sinus tachycardia from increased internal secretion is that found in hyperthyroidism. Drugs, as strychnin, result in this type.



1. Sinus tachycardia due to hyperthyroidism. "P" is superimposed on "T" wave. Auricle 152. Ventricle 152.

The Sinus Tachycardia of Extracardiac Origin is present in abnormal conditions of the central nervous system, as psychic or reflected tachycardia of the so-called nervous types, the emotional tachycardia of the French and the orthostatic tachycardia. Drugs, as atropin, paralyse the vagus nerve and thus releasing the inhibition on the sinus node allow the accelerator nerves to increase the rate. In most cases, the pulse frequence is from 90 to 120, but it may reach 140 to 160 and it can even be higher.

Paroxysmal Tachycardia is due to the rapid building up and discharge of stimuli in quick succession and it usually originates outside the sino-auricular node. It arises in the auricle, junctional tissue or ventricle. The rate of the auricle and the ventricle is usually the same but if a complete or partial block is present the chambers contract at different rates. The auricle may contract first followed by the ventricle or vice versa or the two may beat synchronously. The rhythm is usually regular. Paroxysmal tachycardia begins suddenly and ends suddenly. It may continue from a few seconds to days at a time. It is generally of a higher rate than sinus tachycardia, ranging from 150 to 250 per minute. Its lower rate is approximately that of sinus tachycardia and its higher rate that of the lower rates in flutter. The usual rate is between 180 and 200.



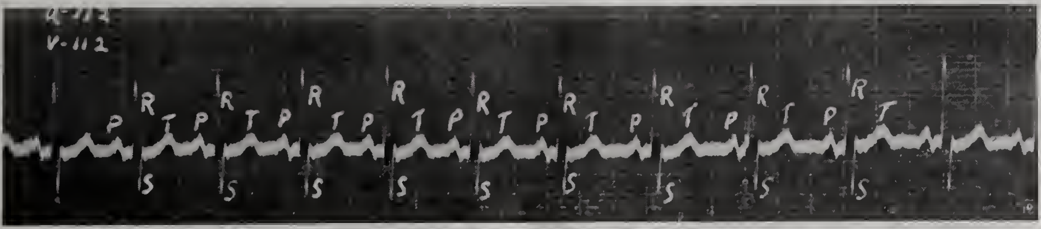
2. Sinus tachycardia due to pulmonary tuberculosis. Auricle 112. Ventricle 112.

Auricular Flutter arises in an area surrounding the mouths of the venae cavae. It is due to a circus movement around these vessels and a stimulus which results in an auricular systole is sent to the auricle with each circuit. Each stimulus may or may not cause a contraction of the ventricle. This depends upon the degree of heart block present. The rhythm of the ventricle is usually between 200 and 300 but may be as rapid as 500 and the ventricle may contract at any rate between these.

Auricular Fibrillation is the result of each auricular muscle fibril contracting independently. The auricle does not contract as a whole, but is in a constant state of quivering. Each contracting fibril sends a stimulus toward the ventricle but many of these never pass through the bundle. The result is an irregular rhythm of the ventricle and a great variation in the blood output with each ventricular contraction. The auricular stimuli may be discharged as rapidly as 3000 per minute and the ventricle may beat at any possible rate.

Extrasystoles may greatly accelerate the auricles, the ventricles or both and are due to rapid building up of stimuli in any part of the cardiac tissue. The stimuli are discharged at irregular intervals, so if manifested in the ventricle, always result in an irregular pulse. Pulsus bigeminus is due to an extra ventricular systole following a normal contraction. The extrasystole may be heard in the ventricle which might be accelerated but, if weak, it may not manifest itself in the radial artery which might be considered normal in rate and rhythm.

Pulsus Alternans which is a strong and weak ventricular contraction alternating may easily be identified in the accelerated ventricle as a tachycardia but only half the impulses may reach the radial artery, thus palpating the pulse may lead one to consider the heart rate normal.



3. Multiple extra auricular systoles in a normal heart. Normal rhythm restored after withdrawal of coffee. Auricle 120. Ventricle 120.

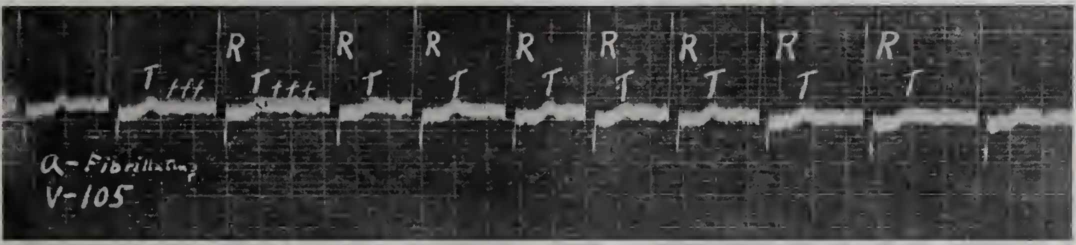
CLINICAL TESTS FOR IDENTIFYING TACHYCARDIAS.

Tachycardias involving the ventricle or that may be transmitted to it after exercise may in a general way be recognized clinically. Exercise often differentiates many types of tachycardias and rest is often of value in recognizing the general type.

In sinus tachycardias exercise accelerates the pulse in proportion to the amount of the work done, while complete rest decreases proportionately the rate of the pulse.

In paroxysmal tachycardia the rate is usually uninfluenced by exercise or rest.

Auricular flutter, after exercise, shows a sudden increase in the rate from 2 to 4 times the original or it may develop into an auricular fibrillation and be grossly irregular. After rest the rate is suddenly reduced to half or one-fourth the exercise rate. This depends, however, upon the functional activity of the auriculo-ventricular bundle.



4. Pulsus bigeminus in a normal heart due to tobacco. Normal rhythm after stopping tobacco. Auricle 90. Ventricle 90.

Auricular fibrillation is grossly irregular in every respect and often after exercise becomes more irregular if such is possible. Irregular flutter is difficult to differentiate from fibrillation by any clinical method.

Multiple extrasystoles tend to disappear with exercise and reappear after rest.

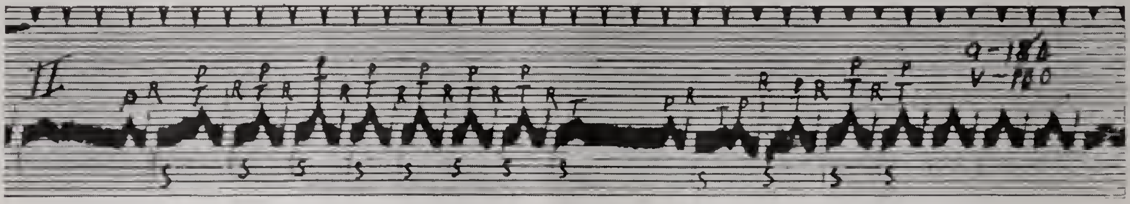
As far as watching the waves in the jugular vein is concerned this has been of no value, in my experience. Thus the pure types can often be recognized by the foregoing method although there is always an element of doubt in the diagnosis.

Pulsus alternans may be recognized when the blood pressure is taken by the auscultatory method. When the cuff is slowly deflated the rate of the arterial sounds are suddenly doubled as the alternate weak contraction is heard.

TREATMENT OF THE VARIOUS TACHYCARDIAS.

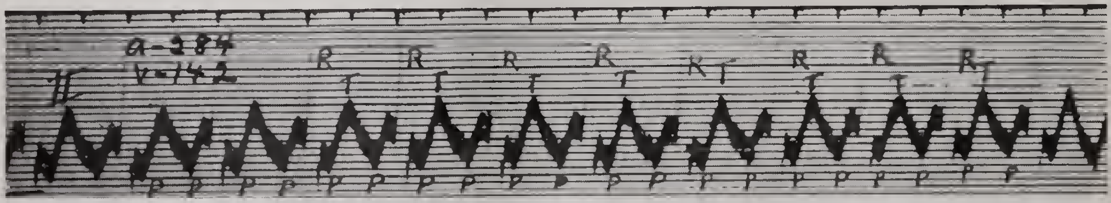
Since any tachycardia may only be a symptom of disease of the heart or other organs of the body the treatment, under such conditions, must be directed toward the elimination of the causative factors and then if the tachycardia does not disappear it must be treated directly. Tachycardias may exist without any discoverable pathology being present, under these conditions such direct treatment as will overcome the tachycardias is attempted. Since the treatment of associated or causative pathology would include every known disease and though of utmost importance this factor cannot be considered in this paper.

Sinus tachycardias are treated according to the underlying causes. Those cases in which the acceleration is due to cardiac stimulants as coffee, tea, cocoa, coco-cola, tobacco or drugs, are remedied by the prohibition of these substances. In extracardiac diseased conditions, as infections of different organs of the body, these must be eliminated as far as possible. In toxic conditions as pulmonary tuberculosis, uremia or autointoxication, the primary disease must be overcome, if possible. In increased internal secretions, as in hyperthyroidism, the medication should be directed toward a reduction of the hypersecretion. In the nervous reflex conditions, in neuro-circulatory asthenia or in orthostatic tachycardia the patient is often relieved by psychotherapy and the administration of some sedative, as sodium bromid.



5. Paroxysmal tachycardia. Normal rhythm after injection of quinidin. Auricle 180. Ventricle 180.

Paroxysmal Tachycardia is due to an increase in the irritability of the myocardium, therefore, any treatment must attempt to reduce this hyperexcitability. Since quinidin has the property of doing this, Wenckebach and Winterberg(2) attempted the intravenous injection of quinidin in these cases with happy results. In every case treated by this method the rhythm was restored to normal within a few minutes. The paroxysm may recur but the oral administration of the same drug, for some time after, will tend to prolong the period of normal sinus rhythm. The intravenous dosage is 0.5 to 1 gram. Pressure on the vagus nerve will sometimes stop a paroxysm.

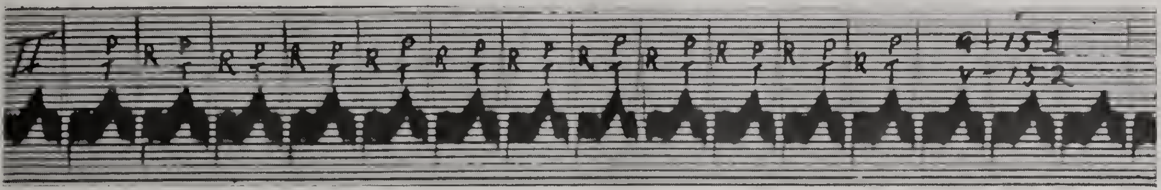


6. Auricular flutter. 2:1 heart block. Myocardial degeneration due to syphilis. Restored to normal rhythm with digitalis and quinidin. Auricle 284. Ventricle 142.

Auricular flutter can be treated, first symptomatically and second radically.

The method of symptomatic treatment is pointed out to us through nature itself. We have seen in flutter and fibrillation that many auricular impulses are blocked in the auriculo-ventricular bundle and that the number of ventricular contractions and the severity of the clinical symptoms are dependent upon the degree of block. Our task, therefore, if we remember the site of the trouble, is to increase the difficulty of conduction from the auricle to the ventricle. To bring this about we have an unfailing remedy in digitalis. The whole art of therapy depends upon the dosage. The fear of cumulative action of digitalis keeps many from getting the desired results. This fear of digitalis intoxication is ungrounded and overdosage is seldom reached when stomach and intestinal disturbances arise. There is no fixed dosage but enough must be given to slow the pulse to the desired rate.

Several years ago, I(3) tested a number of preparations of digitalis used to fill prescriptions in Lincoln. The guinea pig method was used, and I found that only two samples approached the physiological standard. The others were more or less worthless. Therefore, it is easily understood, with the ordinary preparations carried by druggists that to name a fixed dose is impossible. Digitalis is first given until the ventricle is slowed to the desired rate by increasing the block. Then, and then only, is the quinidin administered. The following case will explain the reason for this method. In a case of flutter the auricular rate was 280 and the ventricular 115. The patient received no digitalis. After the intravenous injection of 0.5 gram of quinidin the pulse suddenly rose to 200 and at the same time a high grade dyspnea developed. This seemingly paradoxical and unexpected result is easy to understand. The electrocardiogram showed the auricular rate dropped to 205 from 280 and this sudden slowing of the auricle allowed each impulse to be conducted to the ventricle. The patient thought something terrible had happened and I was not so sure the outcome would not be disastrous. Had the digitalis been given until the resulting heart block had reduced the ventricular rate to about 70 this could not have happened. With quinidin (always first testing for idiosyncracy) one begins with 0.5 gram by mouth per day and increases to 2 or 2.5 grams. If no results are reached after 5 to 8 days it is better to return to digitalis when often the flutter becomes fibrillation, then if quinidin is again given, sinus rhythm usually intervenes. Since the auricle contracts in this condition there is little danger of there being thrombi in this chamber. However, out of 11 cases of flutter I have seen, one died from cerebral embolus whose origin was an auricular thrombus.



7. Changing right and left branch block. Cardiac hyperthrophy and dilatation. Chronic nephritis. Blood pressure 220. Auricle 120. Ventricle 120.

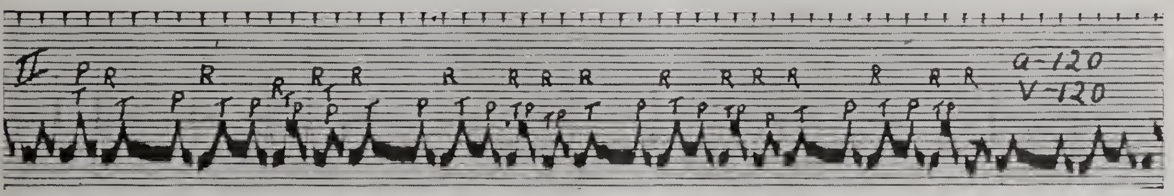
Auricular fibrillation responds to about the same treatment as that of flutter, but one must never fail to warn the family of the possibility of an embolus from the auricle resulting in sudden death. In acute fibrillation rest in bed may restore normal rhythm. Digitalis alone may bring the same result. The best results are obtained by the administration of digitalis and then following this with quinidin. When sinus rhythm results quinidin can be given in small doses for any period of time.

THE ACTION OF QUINIDIN.

Quinidin is a protoplasmic poison and has a general effect of lowering the physiological properties of the myocardium. It reduces stimulus building, irritability, conductivity and contractility of the heart muscle. On this basis it influences the tachycardias, especially those types arising outside the sino-auricular node — paroxysmal tachycardia, auricular flutter and fibrillation. It is not an entirely harmless drug as reports of death following its administration are not rare. I have seen two deaths attributed to quinidin in auricular flutter and one in fibrillation. Two deaths, one in a flutter and one in a fibrillation case, were due to emboli. The third, a flutter case seen in the Wenckebach Clinic in Vienna, Wenkebach believed due to ventricular fibrillation. A careful autopsy by Priesel failed to show any anatomic cause.

CAUSE OF EXTRASYSTOLES.

In 1924 I(4) reported 100 cases of carefully studied patients with extrasystoles. The etiology and associated pathology was not always clear cut but in many cases was unquestionable. Coffee, tea, cocoa and tobacco seemed to have been the etiological factor in 21 cases, since the extrasystoles disappeared after the withdrawal of these. The extrasystoles seemed to have been caused by drugs in the following cases: Aspirin, 1; strychnin, 2; digitalis, 3; for the rhythm returned to normal after their discontinuation. Seven



8. Auricular fibrillation. Mitral stenosis. Rhythm normal after digitalis and quinidin. Ventricle 105.

pregnant women developed extra-systoles which disappeared after confinement. Alcohol accounted for 3, since the extrasystoles only developed after a "spree". Cardiac pathology was the causative agent in 9 patients, 4 of whom died from myocardial degeneration. Infections and toxemias of extracardiac origin seemed to be responsible in 31 cases. The other causes were as follows: Hyperthyroidism, 1; influenza, 3; neurosis, 4; mental overexertion, 1. There were 14 patients in whom a diligent search failed to reveal any pathology or any other cause.

TREATMENT OF EXTRASYSTOLES.

The treatment consists in, (1) the removal of any exciting factor in the environment; (2) the withdrawal of all stimulants; (3) the attempted removal or correction of any pathologic condition; (4) the attempted correction of abnormal functional conditions; (5) proper diet, regular eating and sleeping hours; (6) the administration of sedative drugs; (7) careful explanation to the patient of the mechanism of extrasystoles. I have found that the elimination of stimulants and the correction of the cause of an over-stimulated nervous system due to worry, overwork, and irregular hours, greatly reduce the irritability of the myocardium.

CONCLUSIONS.

1. Some tachycardias are physiologic while others are pathologic.
2. Some tachycardias are manifested in the pulse, some in the ventricle and some only in the auricle.
3. Some may be identified clinically while others can only be differentiated in the cardiogram.
4. The cardiograph makes the identification of the type of tachycardia an exact science and eliminates guesswork.
5. The treatment consists in the elimination, if possible of all abnormalities, whether cardiac or extracardiac, physical or functional, then it is directed against the tachycardia.
6. Every physiological property of the myocardium — rhythmicity, contractility, conductivity, irritability and toncity — may be deranged by the different types of tachycardia.
7. Tachycardias are of so many different types and the pathologic conditions so varied that an exact differentiation of the type and the discovery of the cause is necessary before the treatment can be outlined. Therefore, a complete physical, laboratory and cardiographic examination are always necessary.

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ECTOPIC GESTATION.*

H. Melerian, A. B., M. D., Plainview, Nebraska.

The term ectopic gestation is nearly self defining. Earliest reference concerning ectopic gestation is found in the teachings of Albucasis, in the tenth century.

Three decades ago, medical men recognized ectopic gestation either at the autopsy or diagnosed it, in its tragic state by its symptoms of sudden intense pain, severe shock, blanching of body surface, rapid, thready pulse and sub-normal temperature, the symptoms of sudden rupture and its sequent, extensive hemorrhage. The advent of aseptic surgery paved the way and made it possible for the surgeon to make abdominal sections with impunity and enabled them to acquire direct knowledge of the abdominal pathology in the living. During the last few years, reports of cases of early ectopic gestation are fast multiplying. There is no doubt that a greater number of cases occur either unrecognized or recognized in its later stages. There are several reasons for this condition: viz: The symptoms being mild, the patient deems it unnecessary to seek medical advice. The disease may usher in suddenly without any previous warning. Quite often a reliable history is not obtainable. The attending physician may not be on the lookout for this disease. Oftentimes, before rupture, the condition is very difficult to diagnose. An atypical case of ectopic gestation may resemble an atypical case of diseases from which differentiation may be nearly impossible. It is admitted that in some cases before rupture, it is a puzzle and a guess.

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*Read before the annual meeting Nebraska State Medical Association, Lincoln, May 12-14, 1925.

It is now recognized that fertilization commonly takes place in the tube (Williams). True or primary abdominal gestation has no satisfactory explanation. Primary ovarian gestation is admitted. There are over 70 cases on record. The acceptance of a primary ovarian gestation, depends on its conformity to Spieberg's four criteria, viz:

1. The tube on the side of pregnancy must be intact. (8).
2. Foetal sac must occupy the position of the ovary.
3. The ovary must be connected with the uterus by utero-ovarian ligiment.
4. Definite ovarian tissue must be found in the wall of the sac.

If Webster's claim, that a tissue of Mullerian type is necessary for an implantation, is sound, this might furnish a reasonable ground for these extra-tubal ectopic gestations. A case of Tuhske, referred to by Crosson, in which an abdominal ectopic, with its placental attachment onto the liver taking place, might be explained by the above theory. Unless we accept some such theory, that of a primary abdominal pregnancy with living child, must go unexplained. It is generally believed that nearly all other cases of ectopic gestation are primarily tubal in origin. A case in which gestation took place in a section of the tube enclosed in a sinus, following a hysterectomy operation, reported by De Lee(5) and also a case reported by Dr. Streeter(9), wherein an ectopic gestation took place in the superficial abdominal fascia, should be considered tubal-gestation. Various terms used, such as tubo-ovarian, tubo-abdominal, intraligamentous gestations, are primarily tubal in origin, secondarily attached to, or ruptured into adjacent tissue or organs.

It is supposed to take about eight days for the fertilized ovum to reach the uterus. Failing to reach its normal destination, for reasons to be mentioned later, it is arrested on its way and nidation takes place in the tube(4). The fertilized ovum is supposed to possess sufficient nutritive material in its cytoplasm for the time before the villi fasten themselves to maternal vessels. Trophoblastic cells of the fertilized ovum immediately after its arrest, destroy the mucus cells of the tube lining, while its villi begin their erosive action on the blood vessels, penetrating through the muscular layer. As the embryo develops, it subjects the damaged tube wall to high tension, and rupture takes place. Soon hemorrhages of varying degree occur and cause the detachment and destruction of the ovum or embryo. Rupture usually takes place about the sixth week of gestation. The causes of rupture, no doubt, are the unprotected soil and erosive action of the villi. The scanty musculature of the tube wall does not give adequate protection and does not furnish a substantial decidual wall. Occasionally, rupture takes place in the line of least resistance, that being the free border of the tube. It is believed that cornual rupture is followed with severe hemorrhage, due to its unyielding wall. Resultant condition, after the rupture, is largely dependent on the location of the rupture, and the size of the blood vessels eroded, tubal abortion, with some slight protection from the tubal wall; blood may gradually trickle through the ostium into the peritoneal cavity, producing pelvic hematocele. It may rupture into the layers of broad ligament, getting some degree of protection from its wall, causing an intraligamentous hematoma, or may rupture on account of high tension in the tube, through its weakest point, into the pelvic basin; or pregnancy taking place in the cornua may rupture into the uterus. Sometimes death of the ovum occurs and forms a mole, without any immediate trouble, although a possible future menace.

The amount of hemorrhage in these cases is dependent on the amount of compensatory hypertrophy of the tube wall, the size of the blood vessel eroded and the size of the rent in the tube, coagability of the blood, location of the rupture in the tube and the protection rendered by the tissues in its environment.

A six-weeks embryo is supplied by larger vessels than an earlier one. A tension rupture is not likely to be followed by extensive bleeding. A high index of coagulability is favorable. On the other hand, if a large vessel is eroded, and rupture takes place in the cornua and blood does not coagulate readily, bleeding will be extensive. Small periodic hemorrhages depositing layer after layer of coagulated blood may be a check to a later more extensive hemorrhage. The rupture commonly takes place in from four to six weeks. Thurston gives nine weeks as an average time. Streeter gives the most common time for rupture, five to eight weeks occasionally prior to four weeks, and claims that after twelve weeks, rupture is rare. There are a number of full term cases with living children on record, showing they have taken place but they are without any suitable explanation. There are also quite a number of early ectopic pregnancies nearly all tubal, on record, either diagnosed or discovered in the course of abdominal operations.

The following etiological points will be taken up in their order:

1. Pathological corpus luteum secretions.
2. Heredity.
3. Neoplasm.
4. Congenitally abnormal tube.
5. Pelvic infection, either primary or secondary.

Sippell(4) (Graves P. 443) "Noting the cases of right sided tubal pregnancy with a corpus luteum verum of the left ovary, or again, pregnancy taking place in the only tube, when one ovary and one tube is left intact, situated on opposite sides, he claims that distance is lengthened and the ovum attaining too large a size, gets blocked in the tube." There seems to be no evidence that the operated cases wherein there remains one tube on one side and one ovary on the opposite side, are prone to ectopic gestations.

The function of the corpus luteum by an internal secretion, is supposed to maintain a vital relationship to gestation. G. Born and Frankel believe that changes in menstration and gestation are regulated by it. Loeb showed that the corpus luteum through its internal secretion, contributed a hormone, which prepares the uterine mucosa for decidual formation, thus preparing the soil to receive the ovum. The action of corpus luteum hormone on gestation is more essential in the first part of gestation. Injury or removal of this body in the early stages of pregnancy is followed by abortion. Breast changes also are attributed to this secretion. Dr. Pherron(12) (S. G. & O. July 24) says, "If fertilization takes place and pregnancy continues, the life history of the corpus luteum is prolonged instead of absorbed at three weeks; like the corpus luteum spurium, it continues to increase in size, due to proliferation of the luteum cells. It reaches its maximum at about the sixth month, sometimes reaching the size of a hickory nut. Opinion differs in regard to the physiological importance of the corpus luteum. The most common opinion, however, is that luteum cells have a secretory function, which in some way control the development of the egg and the activities of the uterus. In fact, it seems that the stability of pregnancy is dependent on the integrity of the corpus luteum, for removal during early months of pregnancy usually causes abortion.

It is a common practice among veterinary surgeons to destroy the false corpus luteum to produce heat in the animal. If by mistake the true corpus luteum is destroyed, invariably within 24 to 36 hours abortion takes place or the cow may bleed to death. It is believed by some (De Lee(5)) that an abnormal internal secretion from the corpus luteum excites the trophoblastic cells to an earlier erosive action, causing the fertilized ovum to seek anchorage before it had had time enough to reach its normal destination. A pathological ferment from the corpus luteum either contaminates the stream leading to the uterus or causes an untimely leavening of the trophoblastic cells and forces the ovum to nidate in an abnormal soil.

Franklin Mall(1) in his monogram "Contributions to Embryology" gives us the following statistics: Out of 117 cases of tubal pregnancies 30 in number, or 81% who had normal embryos, 2 or 5.5% had pathological ova. Specimens sent to him, without any previous examination 13 or 16% who had normal embryos, 20 or 25% had pathological embryos, 47, or 59% had pathological ova. Out of 46 unruptured specimens examined in Kelley's laboratory, 2, or 4.3% had normal embryos, 5, or 10.9% had pathological embryos, and 39, or 84% had pathological ova. The author suggests a hereditary etiology from the occurrance of the high per cent of pathological ova. He says, "It is of interest to consider together the pathological ova obtained from tubal pregnancies, for it is through the study of these, that light may be thrown upon the question, whether their condition is inherited or due to faulty environment. In the former case, the percentage of pathologic embryo should be the same as among those obtained from the uterus; in the later, the percentage should be increased."

Any growth in the tube will no doubt stop the ovum in its passage. A papilloma or carcinoma growing at the expense of the lumen of the tube will check its onward progress. Also any tumor mass in the pelvis may encroach on the tube, occluding its lumen. Fruend(3) advances the theory that some of the spiral convolutions which are found normally in the embryo, persist in adult life and cause obstructions to lead to extra-uterine pregnancy. (Crossen, Diseases of Women). Atresia of the tube at the uterine end or occlusion in the middle segment of one or both tubes may cause it. However, these congenital defects are usually accompanied with other malformations of the genital organs which alone may exclude pregnancy. It is generally admitted that the most frequent cause of ectopic gestation is pelvic infection; especially is this applicable to the tubal variety which furnishes, by far, the greatest number.

Salpingitis and perisalpingitis are etiological factors in more than 75% of all cases. Gonorrheal salpingitis creates slow and extensive tissue reaction in the lumen of the tube. Because of its destructive action on the cilia, it is considered to be one of the causes of tubal pregnancy. Kelly's laboratory examinations showed that the cilia was nearly intact. Follicular salpingitis by fusing the tips of the follicles, forming pockets, and sacculating the mucous surface at the expense of the tube lumen furnishes the most suitable environment. "In 1912 two-thirds of Optiz's cases showed unmistakable evidences of inflammation. Even when they showed no inflammation, the tips of the folds were agglutinated." In tubercular salpingitis, the type that extends from the peritoneum, by closing the abdominal ostia, excludes ectopic tubal gestation; the type extending from the uterus favors it, but it is rare. Pelvic perisalpingitis and perimetritis favor it by angulating the tube, or fixing the uterus by adhesions.

In multipara, tubal pregnancy seldom follows after marriage. In majority of the cases, there is what is called relative sterility. It has been suggested that the localized salpingitis in these cases is due to implantation reaction. This has been denied by Mall, stating that inflammatory localized salpingitis caused by nidation is short lived and negligable. It is said, that ectopic pregnancy is relatively more frequent in the cities. This statement will tend to prove the occurrance of a higher frequency of gonorrheal salpingitis in the large cities, only when due allowance is made, that these cases are better diagnosed in well organized clinics. In making diagnosis, the marital history of the patient is important. A woman who has given birth to a child and goes sterile for a few years, in women who have been married a long time without being pregnant and occasionally a single girl, is the subject.

Usually a history of chronic salpingitis is obtainable. Engstrom operated four times for tubal pregnancy on patients who had been treated for salpingitis on the side the tubal pregnancy took place.

Still more important is catamenial history. Irregularly intermitted menstrual history in a woman of child-bearing period, who has had normal menstrual periods, is a point that should not be overlooked. This irregularity of menstration is quite characteristic. It is irregular in its time and its amount, in its unexpected cessations, and renewals. It is like snow flurries in March. It may give a history of a missed period only. Nearly 90% give a history of intermittent menstrual flow of varying degree. These cases should be subjected to repeated examinations at different intervals, as they may not have any bloody discharge on the first examination.

The pain is also characteristic in these cases. It varies from a slight ache to a sharp stabbing pain. It is felt usually on one side of the pelvis, though it may be felt clear across the lower abdomen. It may manifest itself by a series of light crampy pains and subside to renew again at various intervals or it may cause severe lancinating pain and culminate in rupture. In a certain per cent of the cases, shock and fainting occur. As a rule the temperature curve varies but little from the normal; it may be a little sub-normal, usually normal, or somewhat above. This is often true before the rupture. This temperature chart is a great aid in differentiating tubal ectopic from other inflammatory conditions of the pelvis. The pulse in unruptured cases is practically normal, slightly elevated at times, more so during paroxysms of pain. In ruptured cases the pulse is quite rapid and thready, its rapidity nearly proportionate to the amount of blood lost. Blood pressure falls in proportion to the acceleration of pulse from the same cause. In reviewing 400 cases of extra-uterine pregnancy reported by Drs. Mason and Starr(7), the history of symptoms in reference to their frequency are given:

Intermittent discharge of varying degree	89.5%
At examination discharge of varying degree	66.8%
Pain	88.5%
A small number came to the hospital for pain but only one had missed a period.	
Initial collapse with fainting	15%
Vomiting	40%
Vomiting accompanied with fainting	6.8%

The youngest patient was 18 years old and the oldest 47 with 14% between the ages of

20 and 25, 31% between the ages of 25 and 30 and 18.1% between the ages of 35 and 40.

The marital state in 356 show 1.4% widows, 7% single girls, 27.6% pregnant for the first time, 24.8% pregnant for the second time and 21.4% pregnant for the third time, making a total of 73.8% before the third parturition.

As to the age, a majority occur between the ages of 25 and 35.

Out of 322, 80% manifested abdominal tenderness, Mass felt per vagina 84.7%

28.8% miscarriages are noted.

Excluding all cases of pelvic conditions for temperature, the result was: temperature in 85%, 96-97; in 13.7%, 97-98; in 18.6%, 100-102; in 1.8%, 102.

The pulse rate was as follows: 36.3% under 100; 28%, 100-102; 11%, 120-140; and 4.1% above the proceeding figure.

Diagnosis of tubal gestation is very difficult in the early stages. Intra-tubal tension must reach to a certain point before the patient has any pain. Tenderness on the mass can be detected. History of an irregular bloody discharge, slight enlargement of the uterus accompanied with some other sign of pregnancy in a healthy woman of child bearing age, should more than arouse suspicion. These patients should be under close observation and should be examined at intervals to enable the attendant to detect as early as possible, any mass or tender point.

The diagnosis in ruptured cases with its alarming symptoms is more readily made. Ectopic gestation is differentiated from a number of abdominal and pelvic conditions. We can omit inflammatory conditions in this region because their history, temperature and manifestation of toxic absorption will readily identify them.

Numerous mistakes have been made in differentiating tubal ectopic from a small ovarian cyst with its pedicle twisted, when definite signs of pregnancy are lacking and no appreciable enlargement of the uterus could be detected. Tubal hemorrhages could be easily mistaken for tubal ectopic pregnancy. Nearly all these cases are urgent operative cases.

It seems to me the most difficulty is encountered in attempting to differentiate a tubal ectopic from the uterine gestation; more so, from a case of recent miscarriage with tubal infection. In case of a uterine infection after miscarriage the tubal involment is usually bilateral. The remnants of chorionic villi found in the scraping will clear the diagnosis.

The diagnosis of a bilateral tubal pregnancy from a bilateral tubal infection following a recent miscarriage is still more difficult and it is seldom encountered.

In ectopic gestation cervical softening is not well marked. Mason gives the softening of the cervix, 33.2%. On the other hand the cervix in recent case of miscarriage is patulous. In curettement, it is necessary to dilate the cervix before entry is made. On examining the uterine mucosa, the surface is found smooth, encountering no roughened placental site. Other symptoms, such as high temperature, chills of inflammatory origin will aid in diagnosis. Microscopic findings from the scrapings will render valuable information as to the location of the pregnancy. There is only one rational treatment for these cases. As soon as a reasonable diagnosis is made and necessary supportive measures employed, the patient should be operated on.

Some advocate postponement of the operative procedure for a day or two in order to give the patient time to recuperate. This may be advisable in some selected cases. Delay may bring catastrophy by a more severe hemorrhage or deplete the blood-hemoglobin by repeated small hemorrhages.

Colpotomy should be done only when it is more likely a case of pelvic abscess than ectopic gestation. It is claimed that secondary operation raises the mortality from 17% to 40%. It is a blind operation useful only for the purpose of a safe and easy drainage, preparatory to a later abdominal section. Drainage is unnecessary unless for infection or when proper disposal of blood clots cannot be carried on, because of the condition of the patient. Drainage tubes are necessary evils causing adhesions, partitioning off the abdominal cavity, restricting the respiratory amplitude. Blood clots should be cleared away as nearly as possible to shorten convalescence and to avoid overloading the kidneys.

There is hardly any problem in surgery which at times manifests itself by such an array of symptoms and signs, taken together in their relative importance, singularly characteristic of the disease, and again with scarcely any evidence of its existence.

Ectopic gestation is a conception in aberation with a physiologic beginning and pathologic ending. It is a pregnancy. In making diagnosis if this view of it is taken, it will render us material aid. Diagnosis is better made from its symptom-complex than by differential method, although the latter is very useful. The higher mortality of ectopic gestation can be lowered, only when we are on the look out for its earlier symptoms and signs.

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DISCUSSION

A. B. SOMERS, M. D., (Omaha): I am not going to undertake to discuss that paper. I have just a few opinions of my own on ectopic pregnancy.

The ectopic pregnancy is characterized almost invariably by some derangement of the menstrual function, and pain. They are the two cardiac symptoms. Derangement with the menstrual function commences immediately. There is a lessened amount and an irregularity of the menstrual function. The pain is characterized not as a steady, constant, severe pain, but as a more or less spasmodic, intermittent pain.

Now, not going any further along that line, I would tell you of a case I have seen within the last ten days. I was called a week ago last Monday to a woman who had been under the care of her family physician, who said he could discover nothing. She gave this history: She had menstruated perfectly normally the 19th of March. She was a good, healthy looking woman. She had one child two years old. She said her menstrual periods had been absolutely normal from six months after that child was born until the 19th of March, when she stopped. After five days she began to menstruate again, a slight amount, with spasmodic pain more or less intermittent.

Low down on the right side of the pelvis there was considerable pain on pressure. She had no other symptoms. I did not make a pelvic examination. I did not think there was need of it. At a matter of fact, I diagnosed a probable ectopic pregnancy. At the end of five or six weeks there would not be a great amount of swelling of the tube.

I put her in bed. She was not in bed, even. I gave her something to relieve her pain. These cases do not usually require a great deal to relieve the pain. You do not have to give morphine very often. I gave a little codein and some aspirin, and went back the next day. She said, "I am very comfortable indeed. The pain is all gone, but the bloody discharge continues".

The tenderness low down in the pelvis on the right-hand side was very much diminished. I confirmed my diagnosis of an ectopic pregnancy of six weeks' duration. I did not expect to take care of the case, and I recommended my partner, who is an operator, to see her. He put her into the hospital and operated and found a tubal pregnancy.

Now, any disturbance or any derangement of the menstrual function should always be carefully investigated and find out what the cause. These derangements that come in married women absolutely healthy and well and regular in every other shape and way, you may have a suspicion almost immediately you have a tubal pregnancy. If you confirm it, do not wait until the rupture.

F. A. LONG, M. D., (Madison): I have had a somewhat unusual experience for a country doctor in regard to ectopic gestation.

Quite a number of years ago, I was called early one morning to a lady four blocks from our home with the story that her husband had found her sitting on the toilet-stool in great agony and in such condition she could not talk. I went immediately, and she being a person who had had a series of miscarriages, I jumped to the conclusion that she was getting ready to have another miscarriage.

She had such terrific agony that I could not get her to talk to me, so to relieve her pain I gave a hypodermic of morphine and went back to my house to get my obstetrical outfit. When I returned, her husband, who was a very testy Scotch-Irishman, said, "I think you gave her too much morphine. She is getting pretty low".

I found she did not have any radical pulse. I then made a careful examination, and I could feel something in the cul-de-sac. I determined I must have a ruptured ectopic gestation. She remained pulseless — no radial pulse — from 7 a. m. to 2 p. m. We raised the foot of the bed and put on hot applications and commenced to give her hypodermic injections of digitalis, etc. At 2 p. m. she commenced to rally. We saw hope, had a consultation and sent to Omaha for a surgeon, who operated the next morning. He waited all night, giving the woman opportunity to rally. The result was she made an uneventful recovery. The early hypodermic of morphine saved that woman's life.

Another case in more recent years has been an outstanding one to me. I was called to a home five miles from town early in the morning. The husband said his wife had had a "belly ache" all night. I thought, "I won't be in such a hurry to go out," and I wasn't, which I regretted afterwards. When I got there she was in collapse. About six a. m. she had gone to the outside water-closet and could hardly get back to the house. When I got there she had blanched lips and was almost pulseless, and cold. I said at once, "Something awful has happened here". I made an examination and found a bogginess in the cul-de-sac, and gave a hypo of morphine. We raised the foot of the bed and put on hot applications and called a consultatation and got a nurse. She rallied so much in a few hours we decided to wait for a more favorable time to operate.

Two weeks before I was called, she had been to the office to see me, but I was not home. She had felt a lump and pain in the left side for several weeks. She was nursing an eight-months old babe.

The operation was done four days later. A fetus of approximately 4½ months gestation was floating free in the abdominal cavity. The rupture was at the left cornu of the uterus and required amputation of the cornu to close the wound. We have the feeling that this woman's chances were much improved by watchful waiting.

H. J. LEHNHOFF, M. D., (Lincoln): I want to report one symptom in regard to this complex that practically never occurs in literature. Several years ago I had reason to report several cases of ectopic gestation and to report this one symptom. Up to that time, as far as I know, it had only occurred in literature once. That was the symptom Dr. Long mentioned of low pelvic pain when the woman is at stool.

It does not occur in every case of ectopic gestation, but only where the hemorrhage has reached the peritoneum. I believe if you will follow your cases you will have the same result I did — that it occurred in almost 50 per cent of them. When it does occur, I believe it is pathognomic of ectopic gestation. I do not know of any other pathology that will present that severe, cutting pain at stool. When it does occur, I believe it is as pathognomic as any symptom of any condition.

M. L. HILDRETH, M. D., (Lyons): I had an experience some years ago of a woman who came ten miles with a typical history of ectopic gestation. Upon examination, I found a mass. I said, "We will go to a hospital and not let grass grow under our feet, because you are in danger of rupture".

I sent her to a friend in Omaha and he put her in the hospital and operated and found it was a tubal pregnancy and was disintegrating outside through the uterus. The fact of it was, he did not open the tube because he did not want to contaminate the peritoneum. He kept her a few days and sent her back to me.

They went right on home. I heard no more of the case. That was in the middle of the winter. The next spring I was up there fishing and the husband of this woman came and said, "Come over to my house and see my baby."

"You haven't a baby. You left it in Omaha."

"No, we have one. Here is our baby born last week."

I said it was unbelievable — a twin pregnancy, with one twin in the tube and one outside. The second baby was normal.

I should like to make one remark. The points I brought out were from a case kept under observation and diagnosed as ectopic before it ruptured. The symptoms and signs she presented corresponded to the findings of an ectopic case. I urged her to go to a hospital and then kept track of her. She would have three or four pains and then they would subside for two or three days. In two weeks it ruptured and I removed the tube in question with its contents.

The whole mass fell into the narrow pelvic cavity. The blood was thick, and apparantly the condition of the pelvic bones seemed to check the bleeding.

I think in those cases we can examine from the vagina we might find earlier signs of tenderness. I believe we can find more points by keeping the patients in the hospital and seeing what they are doing as to temperature, tender points, and vomiting. This lady had tender breasts. You do not see that very often.

A RESUME OF CONDITIONS AFFECTING THE PRACTICE OF MEDICINE*

Frank B. Young, M. D., Gering, Nebr.

It is very evident to the observer of conditions in the practice of medicine that there is something radically wrong. In presenting this paper for discussion I not only expect to present some views of my own but hope to bring out in the discussion the ideas of others.

In the first place, why is there so little interest shown in medical organization? We realize that it is almost impossible to get a majority of the members of the profession in any community to take an active interest in the County Medical and to attend its meetings. The same persons will regularly attend all meetings of a Chamber of Commerce, a Rotary, or Lions Club, but will "forget" or willfully neglect the professional organization. Is it because these men can neither learn from other men in their line of endeavor, nor impart information to them? Is it because they are too lazy to make the necessary mental and physical effort to attend meetings? Is it because they are too jealous of their confreres to want to come into contact with them? Or, is it simply because they have no interest in co-operating in the scientific, the social, or the business interests of their chosen profession? Personally, it is my opinion that the latter question covers the case. For many centuries, and until the last few years, the practice of medicine has been purely an individual matter, and the traditions of that time still becloud our mental and professional horizon. Twenty-five years ago it was possible for one man to cover in a reasonably effective manner the whole field of the practice of medicine. That time has passed with the development of the many advances of the sciences. In many cases, in fact, probably in ninety per cent of all cases, one man can yet do all that is required in both diagnosis and treatment, but there remains the ten per cent that will require more attention than any one man can possibly give, and many of the ninety per cent would be better off could they have the care of two or more adequately trained and well equipped medical attendants. But this fact is not yet realized by the profession as well as it is by the laity, as witness the daily departures from this territory of patients to various noted clinics. The people know that they require a careful physical examination, which might be checked by two or more persons, that they need a considerable amount of laboratory work on their various secretions and their blood, that they may need x-ray examinations, in fact that they need many things they cannot count on getting from their regular medical advisers, and that they need these things before any surgery or other treatment is attempted. They also know that their local men will not co-operate even to the extent of attending their local, district, state, or national organizations and taking part in the proceedings. They realize that only the threat to drop them from the staff causes these same men to attend hospital staff meetings, that they come late and leave early, giving only perfunctory attention to their duties in any medical organization. It may be that my patients talk more plainly to me than do those of other doctors, but I hear these stories and explanations almost every day, and I surmise that I am not the only one who hears them. Whether these group procedures be carried on by a definite organization or by the co-operation of independent workers will depend upon local conditions, but they are practicable in any community where there are a number of capable doctors.

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*Read before the Tenth Councilor District Medical Society meeting. Sidney, Nebraska, June 22, 1925.

I have been intensely interested in medical organization for all my professional life and have considered the situation from many angles. When traveling I have made it a point to inquire of doctors everywhere as to their local medical societies. Nearly always I am told that the county medical society is a failure and many explanations are given for this condition. One of the most common statements is that "a clique runs it," another that an individual is attempting to use the society to further his own interests. These statements may be true, in fact, sometimes are true, but the remedy lies easily at hand. All that is necessary is that the majority take charge and remove the reins of government from the hands of those abusing their privileges. If those dissatisfied with the conduct of a county medical society will come forward and attend the meetings and do their duties such a situation cannot arise. So the ones at fault are really those who do the most complaining. Another statement is that there is nothing of interest in the local meeting, and this certainly is a mistake. I can truthfully say that I have never talked to any doctor ten minutes on any professional subject without learning something of value to me. If the members of any society will meet regularly and discuss well prepared papers much information of great value will be revealed and made common property. I am much in favor of depending upon local talent for the programs of local organizations, and of inviting outsiders to address such organizations only upon rare occasions. There are many things to be said in favor of this idea, first, that when one prepares a paper carefully he learns much of that subject himself and the very writing of it systematizes his knowledge and makes him master of that subject; second, that the local members present feel more free to enter into a thorough discussion of the subject than is the case when distinguished visitors present the subject, and thereby the membership receives the greater help; third, that the local men learn the ideas, the aspirations and ambitions of their close associates and the work actually done by them. The man from a distance may tell a lot of things that he has not done, but the man near home must stick to the truth. And we all know that these things do happen. It is well to occasionally invite an outstanding member of the profession from a distance to address us upon some particular subject, but let us depend upon ourselves to study our own daily problems among ourselves. In a business way we may make the local organization of great value to us, but it is not done. For some years an attempt was made to keep track of deadbeats and scoundrels and to uphold a reasonable fee-bill in this community, but this effort has been finally and definitely dropped because of lack of co-operation, and now it's "every man for himself and the devil take the hindmost." So that we are now losing money; being imposed upon by deadheads; made the butt of the community, because we cannot and will not co-operate to protect our own pocketbooks.

Some few men in the panhandle country of Nebraska may have profited by this action on their part, but the profession as a whole is made "goats," and laughing stocks. Why can't we co-operate in a business or professional way? Echo answers, WHY?

Much has been said in both lay and professional journals about "Commercialized Medicine." Let me say that I do not believe that a decent effort to collect a reasonable fee from those able to pay it is commercialized medicine. But unnecessary operations; excessive fees; fee-splitting; doing free practice for influential persons; cutting fees to an unreasonably small amount for those able to pay a respectable fee—thus cheapening both the individual and the profession; making a charge for services not rendered, either through inability or carelessness; disreputable competition among doctors in their efforts to secure patronage; having friends and patrons "drum up" patients; soliciting other doctors' patients' business; these and some other things do constitute commercialization of medicine. Let us thank the Lord that there are few of this kind of doctors in our territory. The practice of medicine is today of necessity a business; we are in it to make a living. The cost of practice is so great and the overhead so expensive that in justice to our families and our own old age we must get a reasonable compensation out of it. And the lawyers, the preachers, the merchants, who make a living out of their life work are not stigmatized as "commercialized." Why should the doctor be, he, who is always ready and willing to do his utmost to relieve the suffering of the truly poor, when he asks the well-to-do to pay justly and rightly for services rendered? Simply because we have not yet outgrown the old honorarium or gratuity system of medieval days when the physician was the slave of the baron and the barber was the surgeon. Let us advance with the rest of the world, but in advancing let us keep ourselves clean and be able to look the world in the face. A safe rule of conduct is to decide if we are willing for the world, our neighbors, our families, our friends, our confreres, the public at large, to know our actions. If so we are all right, if not, we are wrong. I resent the accusations of commercialism as applied to the medical profession. Let us use care in criticising either the individual doctor or the profession as a whole for each criticism is used and distorted by those who are fighting us because of personal interest or because of ignorance.

We come now to a consideration of conditions in the state as a whole and the state medical society. Are conditions right there? I do not believe they are. The 1925 A. M. A. Directory gives the number of practitioners in Nebraska as 1869; members of the state society, that is of their respective county societies, as 1143; in Lincoln there are given 229 doctors and in Omaha 478. Out of this membership of 1143, which is short of the possible membership, there were only 348 registered at the recent meeting in Lincoln. Why this lack of full membership, nearly 40%, and why from this membership were such an insignificant number present at the annual meeting? To me there are several answers bearing upon this subject though none answer it fully. In the first place is the pernicious custom that has arisen in regard to elective officers. It is a custom, closely though not invariably adhered to, that the presidency and other major offices shall rotate, one year to Omaha, another to Lincoln, and the third out into state. This is so manifestly unfair and unright that it seems impossible that it should continue; but it has. That Lincoln with its number of 229 should be on an equal basis with Omaha, with its number of 478, or that Omaha should be equal to the out-state profession numbering 1,263, is, in my opinion, absolutely wrong. In the first place no ratio should be established, but the offices of honor and preferment should go to those members of the profession most outstanding in scientific and organizational work. If it is necessary to establish a ratio of Lincoln, Omaha, and out-state men, the approximately mathematically right division would be that out of eight officers, one should be from Lincoln, two from Omaha, and five from out-state.

Another discouraging factor to the out-state man is the program. At the recent meeting there were 41 papers presented, of these 18 were given by Omaha men, 13 by Lincoln men, 2 from visitors from outside the state, and 8 from out-state members of the society. Hardly a right proportion I believe, and I further believe that when the out-state members are properly encouraged that these figures will be greatly changed. Another factor that keeps many men from out in the state from appearing on the program is the discourtesy shown them by so many of the city men leaving the meeting room when they begin to present their papers. These are the two outstanding factors in the lack of interest by the rank and file of the profession in their state organization, but again it is their own fault, if they are sufficiently interested to attend state meetings they would quickly overcome these abuses. Also, much interest could be aroused by clinics showing recent advances in diagnostic methods, medicine and surgery which would add greatly to the interest of a medical meeting, as would also a good scientific exhibit showing physiological, anatomical, pathological, and historical subjects. There are the men and the material at command of our state society to put these factors over in fine shape were those interested encouraged to do so.

The greatest trouble with the leadership of medical organization, both state and national, is that it is composed of city men and specialists who are not in touch with the problems and work of the general practitioner from actual experience, but whose opinions are based wholly upon observation and hearsay of matters in which they have no strong, direct, personal interests. The surgeon, the specialist, the consulting diagnostician, the public health official, the medical educator, have in the very nature of things their own interests to care for, and even though they started their life work as general practitioners, conditions have so changed that they no longer have that personal insight into conditions now existing that is required for the solution of our many problems, even granted they have disposition to attempt to solve them.

I think I am not misinformed when I say that there is not a general practitioner on the Board of Trustees of the American Medical Association, the Judicial Council, the Council of Medical Education, and many other of the standing committees and councils of that great organization. Why? Simply because the rank and file have not shown the necessary interest, nor have they been encouraged to do so. It is my opinion that the Board of Trustees should be re-organized, as vacancies occur, in such a manner that three out of the nine members should be general practitioners; and that other Councils and Standing committees should have such men in proper proportion in their organization, except, of course, section committees and other committees composed of necessity of specialists, and that the Judicial Council and the Council on Medical Education should be doubled in number, the increase being wholly general practitioners, carefully selected from various parts of the United States. Committee and Council memberships require a sacrifice of both time and money and the expenditure of much energy, but if men of sufficient information, financial ability, and professional enthusiasm cannot be found among the practitioners of the United States to assume these duties then the American Medical Association has failed of its purpose as set forth in its program of organization. Such an addition to the working forces of the national organization, made up of active men carefully chosen from various parts of the country in such a manner as to give a cross section of the real profession, would produce a body capable of approaching problems in an understanding way and would lead to their proper solution.

Medical education has been under free discussion for the past year and many false premises have been advanced. The first is that there is a dearth of doctors in the rural communities. This is a false assumption and need not be enlarged upon here, for this society is made up of men practicing in communities as rural as it is possible for one to imagine, and we know there is no dearth of doctors to care for all in this panhandle country. The fault in the statistics lies in counting all towns of more than 2,500 as cities, while the fact remains that those of us practicing in towns of that size and larger are doing largely country general practice. The automobile, good roads, the telephone, and the community hospital have made it possible for one man to do ten times the work that he could in a call practice twenty-five years ago. I know this to be a fact for I have been in the harness that long and speak from personal experience, not from statistics nor hearsay.

Another factor in the supposedly lessened supply of doctors is the great decrease of infectious diseases and the far greater certainty and efficiency of our therapeusis. Those of us who have been in the collar for twenty-five years or more will easily recall the epidemics of typhoid fever, dysentery, diphtheria, scarlet fever, infantile diarrhoeas, malaria, and many other diseases that kept us busy on one case for weeks at a time. These exist to a very slight extent nowadays, due partly to prophylactic measures in some cases and to better curative procedures in others, and a far less number of doctors are required.

Another false premise is that a lowering of medical educational requirements will produce a class of doctors who will be glad to locate in small towns and the country, this supposition needs only to be answered by the statement that if any community needs a thoroughly trained and resourceful doctor, it is an isolated rural community, and that it might be better off with one less quickly obtainable but more competent when obtained. Past experience has not proven that the poorly trained men are willing to locate in isolated places, but rather recognizing their own inferiority, they are more likely to stay in larger communities and cities where help may be quickly obtained to get them out of their difficulties. Still another false premise is that the graduate of our better schools will not go to the smaller places. This premise is proven false by the membership of this society, many of whom are recent graduates of class A schools. Another mistake, proven so by the membership of this society is the statement that a poor boy can no longer work his way through school. Several members of this society have worked their way through a class A school and graduated in recent years, and Dean Cutter of the Medical Department of the University of Nebraska told me recently that a number of others are doing so at the present time. Let us remember that an earnest worker can make far more money than he could a few years ago, in fact, that the ability to get increased pay for work done has advanced proportionately to the increase of expense, and that the final result is not so disproportionate as some would have us to believe. Those of us who took part in the fight for a uniform raising of medical educational requirements and curriculums from 1900 to 1910 regret to see this misguided agitation under the able leadership of the presidents of our state and national associations. God pity the people and the profession if their efforts are successful, and they are only too likely to be successful, for it is very hard to influence legislators and others in power to give adequate support to educational institutions under normal conditions when there is no boring from within. Mistakes in detail of medical education should be corrected, but the standard must not be lowered. Much has been said about cults. From the earliest of times, the days of Cagliostro "the arch-quack" to the days of Palmer they have been a thorn in the flesh of the regular practitioner. But the fact remains that they like the poor are always with us and always will be. Our best attitude will be to ignore their bad qualities, and adopt their good ones. And they have good qualities. You never see them fighting among themselves; they stick together in business, professional, and social ways, and present a united front to all opposition, which is one way we might draw a good lesson. When I was a youngster the Homeopaths and the Eclectics were almost as much in disesteem among the regulars as are the Chiropractors and the Osteopaths now, but today we meet graduates of both classes of colleges in these societies gladly and willingly and upon an equal basis. Why, simply because we have taken their good points to ourselves and they have willingly dropped their bad points and we meet upon a common ground. The followers of Hahnemann taught us the power of nature to cure and the uselessness of giving dangerous, vile, and unpalatable, concoctions; the disciples of Thompson and Scudder taught us to study our drugs and laid the foundations for the modern science of Pharmacology. The Christian Scientists reopened the science of psychotherapy. The Chiros and the Osteos will, in fact already have, renewed our knowledge of the beneficial effects of manipulation and massage and are the encouraging factors in the development of various branches of physiotherapy which we may hope will some day be placed upon a reasonable and scientific basis.

State Medicine is attracting much attention and rightly so. The medical profession is to blame for most of its troubles in this line and should conditions ever become intolerable we alone will be the cause. That the state has definite responsibilities in the matter of public health is undeniable, but the amount of work that the state should undertake in that line becomes a matter for disputation. As I see it, the state should attempt to protect its citizens from epidemics, either imported or of local development; it should educate both the profession and the people in the prevention of disease; it should have reasonable food inspection laws; its quarantine laws should be based upon the most recent developments in knowledge of the specific disease to be quarantined; it should furnish proper treatment and protection to certain of its citizens who cannot be properly cared for elsewhere, as the inmates of its penal institutions, the insane, the defective, and the indigent, in definitely organized, and properly equipped, and adequately manned state institutions, either hospital or clinics; it should supply suitable laboratory facilities for the study and control of infectious diseases free to the people through the profession; it should charter and support colleges for the education and development of doctors, both for the practice of medicine and for research into medical problems; it should develop schools for the postgraduate instruction of its physicians in connection with its various educational, charitable, and corrective, institutions; in short, it should do those things that cannot be done by private persons or personal initiative.

But, it should not and must not enter into the private practice of medicine, either in the way of diagnosis or treatment. Neither should it attempt to control therapy nor specify what therapeutic agents must or may be used in any particular case. State medicine to a certain degree is with us and will stay, and with proper limitations it is of great value to both the profession and the people, and can never become detrimental to either.

Medical legislation: The American people have drifted too much into the inclination to "pass a law" in the past few years. The maxim that "those best governed are those least governed" has been long forgotten and we have laws covering every range of human activity with the result that we are today the most lawless and the least law abiding people in the history of the world. And this applies to medical legislation, which is as abominably overdone as is any other type of laws. It goes without saying that it is the duty of the state to protect its citizens from undue exposure to epidemic diseases and so far as possible from imposture by incompetent healers, but our recent laws do not accomplish this. As an instance, the cults previously referred to have not been made to come under the general practice acts, so that the net result has been to raise the standard of medical licensure for the regular graduate and often render a hardship upon him, while at the same time he has to meet the opposition and competition of the ignorant and untrained cultist. Were it possible to have one board to examine all would-be healers upon basic education and essential qualifications, leaving them free to use any therapeutic means they desire, medical practice acts might be made just and equitable. As it is they verge upon being an abomination. Quarantine laws, vaccination laws, certain special tax laws and registration requirements, certain limiting and prohibitory laws, all encroach upon the rights and liberties of doctors, but we take them uncomplainingly or at least with ineffectual protests. The days of free country, democracy, and individualism, are gone, probably forever, from America. No longer is this the "land of the free", probably soon it will not be the "home of the brave". Let us hope this may be for the best though I don't believe it. We had a mighty land of free men before this wave of restrictive legislation overwhelmed us. With our outgoings and our incomings, our uprisings and our downsittings, out eating and our sleeping, our reading and our writing, our education and our thoughts, regulated by state and federal laws in all ways, is it possible that we can advance to what we once considered our destiny as a people, or as a profession. The weak are protected in their weakness and the strong are manacled in their strength, and all reduced to an impossibly low level.

Another matter in which the profession is very neglectful is that of proper publicity to the laity, and in this again we might take lessons from the irregulars, as they lose no opportunities to impress their tenets upon the people. The state leaders say they are interested in this work, but not one of them was sufficiently impressed with the work that has been done by the Scotts Bluff County Medical Society to look into it, though it was repeatedly brought to their attention at the recent meeting at Lincoln. The method of this county society is to have each member who is willing to do so prepare a paper and submit it to a committee of three, this committee examines all papers and submits them to the full society, which then either accepts or rejects them for publication. We have succeeded in securing the co-operation of the Gering Courier, the Mitchell Index, and the Scottsbluff Star-Herald, in this work without cost to the Society and each runs the same article each week, their combined circulation covering all the Valley and much of the outlying territory. Despite this success only about half of the membership takes an active interest in preparing such papers. All published matter is presented under the name of the Scottsbluff County Medical Society and no person's name is signed, which method we consider better than the method used in Douglas county, as it entirely avoids the imputation of personal advertising upon the part of any person.

That much progress has been made in the past quarter century in medical organization is undeniable; but much still remains to be done and done along different lines. In my opinion the greatest need is that the general practitioner be brought more actively into all lines of endeavor in medical organization, county, district, state, sectional, and national. This may be best accomplished by those in authority encouraging him to assert himself and by his own effort to accomplish something for himself, his profession, and for the country as a whole. The general practitioner is not dead but sleeping and needs to be aroused. His methods have changed in the last generation and it is not only futile but wrong to attempt to turn back the hands of the clock and try to make him what he was a generation ago. But withal, he remains the point of contact between the profession and the public and by his work, his ability, and his actions, the whole profession stands or falls.

MODERN ASPECTS OF NUTRITION, THE PATHOLOGY OF MALNUTRITION

11. Acid-Base Equilibrium with Reference to Pediatrics—Part II, Continued.

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INTRODUCTION

Up to the present time the results obtained with artificial methods of feeding infants have been disappointing, to say the least. The morbidity and mortality resulting from an artificial dietary procedure is, indeed, very great. In 1900 Luling(77) reported a study of 13,953 children born in Baudeloque's clinic. He found an infant mortality of 14 per cent in infants breast-fed, of 31 per cent in those who were fed artificially by their own mothers, and of 50 per cent of those so fed by strangers. Armstrong(78) in 1903 studied in Liverpool the cause of death in 1,000 infants. The breast-fed babies had a mortality of 8.4 per cent in the first year of life, while the bottle-fed showed a much higher rate, 22.8 per cent. Out of a thousand fatal cases of diarrheal diseases investigated in 1908 by the Department of Health, New York City, only 90 had partaken of breast milk. Holt(79) stated that the same department estimated in 1910 that nearly 85 per cent of infantile deaths occurred in artificially nutured babies. According to Davis(80), Boston, in 1911 showed a death rate of 74 per cent in infants over two weeks of age that were on artificial feeding. Davis maintained that in Boston the bottle-fed baby was six times as likely to die as the breast-fed baby.

THE ARTIFICIAL FEEDING OF INFANTS IS AT PRESENT CONNECTED WITH A HIGH RATE OF MORTALITY

In 1922 Woodbury(81) analyzed the influence of feeding on mortality based on data from eight cities for 22,422 live born infants. The conclusion drawn was that artificial feeding as practiced in typical city populations was associated with a mortality between three and four times as high as that among breast-fed infants. In 1924 McKay(82) published an interesting paper on infant mortality in relation to artificial feeding. His conclusions in the main agree with those of Woodbury. He observed that the death rate was three times higher on artificial food. The death rate among the artificially nourished was increased for all causes of death. It was especially higher for gastro-enteritis and for respiratory diseases. McKay also noted that the shorter the period of breast-feeding, the greater was the infant mortality; and that the longer the period of artificial feeding, the higher was the death rate. The wisdom of the natural method is again emphasized by the fact that in Berlin during the five years from 1900 to 1904, only 9 per cent of infant deaths occurred among the breast-fed (Graham(83)). During the siege of Paris in 1870-71, the general mortality rate doubled. The women, having no food to give their young, had to resort to nursing. The result was that the infant mortality rate dropped from 330 to 170 deaths per thousand (Brehmer(84)).

THE ARTIFICIAL FEEDING OF INFANTS ALSO SPELLS A HIGH INCIDENCE OF DISEASE

Not only is the death rate much higher under a system of artificial feeding, but the sick rate is also markedly increased. Gastro-intestinal upsets and infections of all sorts are much more common in infants subsisting on cow's milk. Lust(85) observed that tetany occurred only in 2 per cent of the breast-fed, but in 55.7 per cent of children artificially fed. Hess and Unger(86) in 1922 estimated that in the large cities 50 to 75 per cent of artificially nurtured children have rickets. The same investigators later stated that if very careful examinations were made of children not breast-fed, all of them would be found to have a certain degree of rickets. Scurvy is another disease which occurs more often in babies brought up on formulas than in those fed the natural way. The importance of the mother's diet in relation to the anti-scorbutic value of milk is emphasized in a report made in 1898 by a committee of the American Pediatric Society. Out of 356 cases of scurvy in infants only ten had been nursed. The table following is quoted from McCollum and Simmonds' new addition of Newer Knowledge of Nutrition(87). It gives convincing information as to anti-scorbutic efficiency of milks treated in different ways.

Relation between the kind of food and the incidence of Scurvy:

Breast milk	12 cases;	alone in 10
Raw cow's milk	5 cases;	alone in 4
Pasteurized milk	20 cases;	alone in 16
Condensed milk	60 cases;	alone in 32
Sterilized milk	107 cases;	alone in 68
Proprietary infant food	214 cases	

The fact that it is important to give the infant a fair start in life is evident from the results of the breast-feeding demonstration in Nassau County, New York, held under the auspices of the New York State Department of Health in co-operation with the Brooklyn Pediatric Society. The infant mortality, according to Richardson(87a), of the 2,815 babies studied in the course of the demonstration was 49 per 1,000. The rate for Nassau County for 1923, the year of the active campaign, was 64 per 1,000, and for the years 1920, 1921, and 1922, it was 70, 67, and 78 respectively. The greatest difference was observed in the diseases of the digestive tract, for which the ratio was 3 to 1 in favor of breast feeding. As to infants prematurely weaned, about 37 per cent become sick as compared to 12.5 per cent of those fed at the breast for a period of nine months. Had the diet of the mothers been carefully regulated with a view of obtaining a breast milk ideal in nutritional adequacy, we are almost certain that the figures for the sick and the dead among the breast-fed infants would have come down to a much lower level than those reported in the demonstration.

ARTIFICIAL METHODS OF FEEDING INFANTS ARE UNFORTUNATELY GAINING IN POPULARITY

In view of the great protection which normal human milk affords against disease, it is highly desirable that the baby be given the opportunity of developing to the highest extent in the most optimal degree. In some countries, like Japan, breast-feeding is yet the rule. Among the Eskimos artificial feeding is yet unknown. I have been told by Mr. Lambert, a native of New Zealand, that in his country, which has a very low infant mortality, that women nurse their children even on trains and in the street cars. But in Europe and America, artificial methods of nourishing infants is practiced with alarming frequency. Nordheim(88) observed that only 3.6 per cent of women coming to the Woman's Dispensary in Munich nursed their babies longer than three or four months. Holt(83) stated that 80 per cent of the New York babies are breast-fed. That figure probably holds for the population taken as a whole, for the number of naturally fed babies is closely related to the social and financial status of the mother. Thus, Koplik(89) found that 10 per cent of 1,007 infants seen in private practice in New York City were exclusively breast-fed, 30 per cent exclusively bottle-fed, and 60 per cent both breast and bottle-fed. Forty per cent were weaned before the fourth month. Holt(83) estimated that not over 25 per cent of the well-to-do and cultured women of New York City were able to nurse their babies more than three months.

THE REASONS FOR THE EMPLOYMENT OF ARTIFICIAL METHODS OF FEEDING ARE NOT ALWAYS VALID

There are only two reasons for the large number of artificially fed infants. The mothers are either unwilling or unable. In reference to lack of desire, it can be said that a large proportion of those who do not nurse their babies probably have the physical ability to do so. Nordheim(88) made a study of 1,000 mothers, 640 of whom had never nursed. He found that 86.7 per cent had no good reason or cause for not nursing. Often women who do not nurse their babies think they are not able. Others do not do so because they refuse to sacrifice their pleasure and their convenience; still others move and have their being in social circles where nursing is not fashionable. We may also add that many women would nurse their babies if they were made to appreciate the importance of the natural method.

THE IMPORTANCE OF NATURAL FEEDING TO THE PHYSICAL WELFARE OF THE CHILD IS NOT YET FULLY APPRECIATED

To a considerable extent this lack of appreciation is due to the fact that they do not receive proper advice from doctors, who, unfortunately, are themselves in many intances unaware of the tremendous importance of breast-feeding. In the medical schools may yet be found instructors in pediatrics who do not emphasize the value of breast milk. On the contrary they over-emphasize artificial methods and go on hours and hours teaching various kinds of formulas and modifications. Even text-books like Holt and Howland's on Diseases of Infancy and Childhood(90) fail to emphasize the point of increased mortality brought about by artificial methods of feeding, and fail to insist on the employment of artificial procedures except as a last resort. Furthermore, the glowing advertisements in the medical journals of proprietary food products mislead the physician, and the same type of matter in the magazines and newspapers gives the mother the false belief that artificial feeding is as good, if not better, than the natural method. It is evident that in the days of Moses there was no danger of artificial feeding becoming popular, and there were no inscriptions on any Egyptian papyrus, stone or monument praising the glory or efficiency of commercial foods for infants. If such were the case the great giver of ethical and hygienic law would have added an eleventh commandment: "Thou shalt not feed thine offspring with the milk of the cow, the ass, the camel or the goat, or with the concoctions of the food venders, but with the milk from out of thine own breast." Nursing is a physiological, not a pathological act. It is, furthermore, an act endowed with values hygienic, moral and spiritual. A nursing woman is a normal woman, not an abnormal woman.

With reference to inability, we may mention economic inability and physiological inability. In the industrial centers women at work may be obliged for financial reasons to continue on their jobs during the normal period of lactation. They are obliged to resort to artificial feeding in order to continue to earn their living. Physiologically, there may be reasons calling for temporary or permanent weaning, or artificial feeding from the very start. Psychiatric conditions, like manic-depressive insanity, acute infections like typhoid or puerperal fever, chronic infections, like tuberculosis, and metabolic disturbances, like nephritis or diseases of the liver and gall-bladder are indications for artificial feeding. In psychiatric conditions artificial feeding may be resorted to for the protection of the baby. In metabolic disease, breast feeding may be too much of a strain on the mother. Besides, the milk may be of very poor quality. In nephritis the non-protein nitrogen as well as the total nitrogen of the milk secreted may be higher than usual. Mark(91) has detected bile pigments in the milk of a patient who developed jaundice after each confinement. The milk fat contained urobilin and bilirubin.

In infection, besides physical strain and poor quality of milk, there may be danger of contagion. Lawrence(92) found typhoid bacilli in the milk of a woman suffering from typhoid. Uhlenluth and Mulzer(93) have induced syphilitic lesions in rabbits inoculated with milk from a syphilitic woman, although the milk was sterile and free from spirochetes. If an infant, however, has all the earmarks of congenital syphilis and the mother is free of florid lesions, her milk may be utilized since we no longer have to deal with the problem of transmitting infection. In short, it may be said that any pathological condition that leaves debilitating effects on the mother may do likewise for the infant indirectly through the milk.

Local conditions of disease in the mammary gland or in the nipple itself may make nursing highly undesirable. However, many of the local conditions may be easily taken care of, and the infant can be taken off the breast temporarily, or not at all. During the first few weeks of life a babe should not be put on an artificial diet simply because of colic or abnormal stools. It is preferable to wait until the mother gets out of bed and has resumed her usual mode of living. The probabilities are that with a return of the mother to normal, the milk will become entirely suitable.

In deciding upon artificial feeding the condition of the infant must also be taken into consideration. Deformities of the lip and mouth may bring physical impossibilities for sucking the breast. General weakness, as in premature babies and congenitally feeble babies, may deprive the infant of the strength necessary to draw the milk from the breast.

THE NURSING MOTHER MAY ACT TO A CERTAIN EXTENT AS A FACTOR OF SAFETY FOR HER OFFSPRING

It is not to be overlooked that the nursing mother may act as some factor of safety for the young. The milk may be of much better quality than is to be expected from the diet of the mother. The mother may sacrifice, although to a limited extent, her tissue to maintain the normal composition of her milk. Eccles and Palmer(94) have studied the composition of milk yielded by cows whose rations were adequate qualitatively but not quantitatively. The animals, undernourished to the extent of 25 per cent, maintained an undiminished milk flow for forty days with no pronounced changes in composition. Babcock(95) deprived lactating cows of any supply of salt outside of that occurring in the fodder. The period of deprivation lasted from two to fifteen months. Some of the animals died from lack of salt, while others were saved by the administration of salt. The yield of milk decreased noticeably only a short time before the cows began to fail rapidly. The milk became chlorine-free long before the cows showed pathological signs due to lack of this element. It is interesting to know that milk from mothers on inadequate food falls off in quality long before the quantity of secretion is interfered with.

HUMAN MILK IS NOT ALWAYS THE IDEAL FOOD FOR INFANTS

Holt and Howland state that human milk is the ideal food. This is a statement which needs rigorous modification. Human milk is the ideal food, provided the mother is free from disease, and is subsisting on a diet adequate in all respects. The biologic value of human milk depends upon the diet of the mother and upon her state of health. It follows, therefore, that not all human milk is, for biologic purposes of growth and maintenance, good milk. To quote from McCollum and Simmonds(87): "It is only within the last few years that the diet of the human nursing mother in its relation to the quality of her milk received the attention which it deserves even by investigators. Until the science of nutrition forced upon us the importance of the selection of foods, it was taken for granted that whatever milk was formed by the mammary gland was of good quality. A study of the data makes it apparent how dependent the nursing mother is on the character of her diet as regards the quality of the milk which she will produce. When her diet contains protein of high biologic value, an abundance of the vitamins, inorganic elements in propor amounts and a source of energy in the form of carbohydrates and fats, she will produce milk which will induce optimum gain in the weight of her young. In just so far as her diet falls short in containing these essentials will the quality of her milk be reduced. The nursing mother cannot, except in a very limited degree, put into her milk from her body reserve that which she does not receive from her food supply. It is, therefore, of the greatest importance that the pregnant and nursing mother have a highly satisfactory diet in order that there shall be no shortage in the dietary essentials in her milk supply."

We see, then, that the composition of mother's milk depends upon the food ingested and assimilated. Morse and Talbot(96) point out three types of abnormal milk. In the first type, all the elements are too high. In the second type, fat and sugar are low, and protein high. In the third type, fat and sugar are very low, and protein very high. The first type is represented by one with higher fat, carbohydrate, and protein than is usual for human milk. Such abnormal milk may be represented by the following composition:

Fats	5.00%
Lactose	7.50%
Proteins	2.60%

This kind of milk may be found among indolent women of the wealthy class, who possess a good digestion, who partake of too much food, and who exercise too little to catabolize any excess of their food.

The second type of milk is seen in the milk too low in fat and sugar and too high in protein. A typical analysis of such secretion is given below:

Fats	1.75%
Lactose	4.50%
Protein	2.50%

This type of milk is to be found among women of the poorer class, compelled to work and who themselves are undernourished and malnourished. The composition of this milk exemplifies a starvation milk. By diminishing the industrial load of the mother and by making the diet adequate, the milk can be brought to normal. Unfortunately the root of the trouble lies in the social status of the mother. While the pediatrician can advise, the patient may be in no condition to carry out his valuable suggestions. In such a case the forces of social service and medicine can unite on common grounds.

The third type of milk, very low in fats and lactose and very high in proteins, is to be observed in general among the neurotic women of any class, and especially among the high-strung, super-refined, and supercultured, found in the large cities, suffering from complexes of excessive inhibition or excessive exhibition. Such milk may show components of the following proportion:

Fats	1.00%
Lactose	4.00%
Proteins	3.75%

It is quite a difficult task to improve such milk, for an effort to change the tempermental make-up of the woman may prove not only a thankless job, but a futile one as well.

Morse and Talbot make no mention of the deficiencies in mineral content and in vitamins, which may result from inadequate diets. These are by far the most important deficiencies and may often be found in some types of abnormal milk mentioned above.

THE MAMMARY GLAND CANNOT SYNTHESIZE VITAMINS

One of the most important facts for pediatrics is that the mammary gland cannot synthesize vitamins. When not present in the food ingested and assimilated by the lactating mother they are not to be found in the milk secreted. Hart, Steenbock and Ellis(97) showed clearly that the content of the anti-scorbutic substance, water-soluble C, in milk is dependent upon the diet. In this nutritive factor, summer pasture milk is much richer than milk coming from cows subsisting upon dried feeds. McCollum and Simmonds(87) have demonstrated that fat-soluble A is not to be found in the milk of a lactating animal on a diet which is free from the anti-ophthalmic vitamin. Nelson, Lamb and Hellar(98) demonstrated that young rabbits nursing a mother rabbit fed a diet deficient in fat-soluble A developed xerophthalmia. The eyes became clear and bright when butter fat was added to the mother's diet. Similar experiments conducted by the Johns Hopkins investigators with diets lacking water-soluble B also helped to establish the principle that the dietary essentials are not present in milk unless the diet of the lactating animal serves as a source. McCollum and Simmonds(87) have recently performed experiments convincing them that vitamin D is also transmitted through the milk of the mother, when it is present in the diet. This fact accounts for the appearance of rickets in breast-fed infants. Brown, Courtney, Tisdall and MacLachlan(99) in 1922 reported in breast-fed infants two cases of rickets accompanied by tetany. The diet of the mothers during lactation was inadequate, since it lacked sufficient vitamins and certain inorganic elements. The milk of one mother was low in calcium and high in potassium and phosphorus, while the milk of the other was low in calcium and in phosphorus.

Not only animal experiments but human experience as well attests to the soundness of the very important principle that the mammary gland cannot synthesize vitamins. Infants nursing mothers suffering from beriberi frequently develop the disease during the first few months of life. Andrews(100) fed the milk of mothers afflicted with beri-beri to young pups, and found that they soon suffered paralysis of the hind legs and gave other evidence of beri-beri. Scurvy has also been reported to occur in infants nourished at the breast. Hess(101) observed that lactating women living on a diet of milled cereal products, tubers, and muscle meats fail to offer satisfactory nutrition to their offspring, for they often develop rickets. Voegtlin and Harries(102) discovered that pellagra sometimes occurs in breast-fed infants. Analysis of pellagra-producing milk revealed the fact that its composition so far as it refers to known constituents does not differ markedly enough to account for the disease in the nursing baby.

THE NORMAL BREAST-FED INFANT IS BRIEFLY DESCRIBED

The normal breast-fed infant gains six to eight ounces a week during the first five months, and four to six ounces during the remaining weeks of the first year. It doubles its birth weight in the first five or six months, and trebles it about the end of the first year. The lips, cheeks and nails are pink. The flesh is hard and firm. It takes plenty of rest, sleeping from twenty to twenty-two hours a day during the first two months, and sixteen hours during the latter half. When awake it shows signs of activity, and its facial expression denotes contentment and happiness. It does not cry unless urged by hunger or the discomfort brought about by a wet diaper or a sticking pin. It is free or almost free of gastro-intestinal upsets. It does not vomit unless shaken up soon after eating. Last but not least, its stools are normal in quantity, odor, color and consistency. In the first few months it evacuates during the day, two to four stools of thick pea-soup consistency, smooth and orange yellow. During the rest of the year the stools are of the same type, but they occur less frequently, one to three per day.

INABILITY TO GAIN IN WEIGHT MAY OCCUR ON BREAST-MILK

It is important to remember that infants on breast-milk may not be making gains in weight, although no gastro-intestinal upsets, like vomiting or abnormal stools occur, or any other signs of ill-at-ease. The fault may lie outside of diet. In some cases over-zealous and busybody relatives, near and distant, may excite and handle the infant to excess. In other cases the infant may not get enough sleep or fresh air, or may not be sufficiently warm. In still other cases the cause may be pyelitis, latent tuberculosis, or an inadequate supply of air as a result of adenoids.

GAIN IN WEIGHT IS NOT ALWAYS A CORRECT INDEX OF NUTRITIONAL ADEQUACY

In closing we must remind ourselves not to place without discretion too great a reliability on weight or weight and height as an index of correct nutrition. Many a baby may have a normal weight or may even be above weight, who is in reality suffering from malnutrition in which edema may be marked. A child on a diet poor in fat-soluble A may show signs of edema long before it develops xerophthalmia. A child with rickets may have an overdistended abdomen, the pot belly, and may present a chubby or full-faced appearance. Infants may develop scurvy while gaining in weight. This fact was pointed out by Hess(103) in 1917.

We have pointed out the dangers lurking in the artificial feeding of infants, although we recognize the fact that this procedure is at times a sheer necessity. We have dealt at length upon the differences between cow's milk and woman's milk. We are now ready to discuss the various modifications of cow's milk used by pediatricians to do away with the disadvantages of the latter by causing it to approach in some respects the physico-chemical composition of the food natural to the human offspring, the secretion of the mammary gland of the mother free from disease and subsisting on food of biologic adequacy. Our next paper is to deal with the actual preparation of acidified milks, and the advantages accruing from their use.

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SUPPURATIVE PAROTITIS*

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The high mortality of suppurative parotitis, the fear of the un-closable salavary fistula, complicating parotid drainage, the seeming increase in the number of cases and certain personal convictions as to the correct treatment of these cases, leads me to accept this invitation to talk to you this evening.

An historical review shows that French and English surgeons of a century ago had rather definite ideas as to the clinical symptoms and pathology. Their notion of the etiology and treatment does not correspond so exactly with modern views.

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*Read at the Third District Medical Society meeting, Auburn, Oct. 29, 1925.

ETIOLOGICAL CONSIDERATION

Writers on this subject of that earlier period associated suppurative parotid disease very intimately with disease of the gonads. This view was probably based not only upon the relation of mumps to orchitis or ovaritis, but it was in that early period that laparotomies for removal of ovaries was begun. Resulting from these operations were many cases of peritonitis with poor intake of fluid and with little or no chewing to stimulate the parotid secretion. These latter conditions probably explain the true relationship of cause and effect, whereas the association of ovary operations and parotitis as observed by these early surgeons was a mistaken conclusion. Today in post-operative esophagus, stomach and duodenal cases, not permitted water by mouth, and not liberally supplied with same otherwise, we frequently see parotid infections. The concentration of the glands' secretion, with a plugging of Stenson's duct predisposes to infection as logically as does an obstructing stone in Stenson's duct or a scar from trauma. This same concentration of saliva, with similar results, probably occurs frequently where parotitis appears in any terminating case or debilitating disease. Likewise a relative obstruction exists in almost any prolonged pyrexia because the concentrated saliva inhibits its flow and invites infection.

EXCITING FACTOR IN ETIOLOGY

The particular organisms commonly found are the staphylococcus and streptococcus. The pneumococcus and typhoid are not infrequent offenders. In one of our cultures a large non-motile, gram negative bacillus appeared. Other organisms are recorded.

Just how does the organism get to the gland? Does it ascend the Stenson duct? Does it have a hematogenous route? Does it follow the lymphatics from the mouth or does it go by direct invasion through contigious tissue? The burden of evidence favors the ascension of the duct. Experiments have shown that the first portion of Stenson's duct contains the same flora as the mouth. In suppurative parotitis, cultures from the gland most frequently correspond to those from the mouth and pharynx. Blood stream cultures are most all negative. The seeming increase in the number of parotitis cases since the influenza, where pharyngeal and nasal infections have predominated, lends further weight to the belief that most cases originate from the mouth.

THE CLINICAL PICTURE

The onset may be mild or very critically severe in a few hours. There is swelling of the parotid gland, with pain varying from discomfort to agony. Mild cases have little fever, slight leucocytosis, more or less malaise, and moderate tenderness. Inspection of the meatus of Stenson's duct opposite the first upper molar tooth may show slight swelling and redness with whitish discharge. The swelling of the gland may come and go several times, associated, in some cases at least, with a certain increased flow through Stenson's duct into the mouth. This emptying out process probably represents the much needed drainage and should always be encouraged by stripping, and moderate squeezing and sucking manipulations. One is justified in assuring himself that the duct is open, even by gentle probing. If obstruction is met, assure yourself by palpation and x-ray that stone in the duct does not exist. It naturally follows that relief from any existing obstruction should be obtained. Splitting the duct open in the mouth, and if necessary to maintain permanent patency, suture it open or practice subsequent sounding to maintain dilitation. Eliminative measures, local wet heat or cold and anodynes should be used. Fortunate indeed is the individual if his case is so mild as to yield to these measures.

The severe case quickly shows greater and increasing toxemia. High fever, rapid pulse, chills, high W. B. C. count, with swelling which spreads to the eyes, face, temple and neck rapidly ensue. Delirium and coma, otitis media, 7th nerve paralysis, and edema of the glottis are recorded. These severe evidences point to necrosis and gangrene unless the parotitis is simply a complication in some terminal disease. Then their explanation may be elsewhere. Occurring in an otherwise normal patient they call for early action because the mortality is alarmingly high. Blair and Padgett report thirty-five cases with a mortality of 42.8%.

RADICAL DRAINAGE FOR SEVERE AND THREATENING CASES

From the study of the literature and our experience with 7 cases in recent time, we believe thoroughly in radical drainage. If the symptoms are serious from the onset or if growing worse after opening the duct and applying heat or ice, then valuable time is saved by prompt drainage. Further delay may mean necrosis and gangrene and probably blood stream infection and death.

Remembering the wide, flat area upon the cheek over which the parotid spreads out; and remembering the direction of the trunk of the facial nerve from under the ear towards the corner of the mouth; and recalling that Stenson's duct is anteriorally directed, your approach from behind will be safest if not too deep. The most acceptable incision is from the zygoma downward, immediately in front of the ear to a point back of the angle of the jaw which is low enough to reach the most inferior portion of the indurated parotid. The skin and fascia covering the swollen parotid gland is dissected up nearly over the entire cheek. This means for a distance of 2½ or 3 inches and perhaps more, upon the greatly swollen face of an adult man. Palpation will usually determine when the anterior, upper and inferior borders have been reached. Be sure to go to this border and it is essential to maintain drainage to this boundry subsequently if acceserbations or abscess formations are to be avoided. Pus is found in small amounts or not at all when blunt puncture in multiple places is done in fairly early cases. Late drainage may show pus, gangrene and sloughing. It is our custom to saturate the field with 2% mercurochrome solution and then lay under the skin fascia flap a sheet of sterile rubber dam and under this over the exposed parotid another layer of gauze thoroughly impregnated with sterile vasoline. Often the skin over the face is painted with stronger mercurochrome, and in one of our cases later complicated by erysipelas a 20% strength of this solution was repeatedly used. Here also we used the same remedy intravenously on different occasions, three to five days apart, in 1% strength.

If the case responds promptly, the deeper drains are not changed with daily changes of external pads. If necrosis of the parotid has occurred it may be best to do this in order to assure free escape. Where necrosis has occurred the convalescence will be slow and one has a long continued, tedious, painful dress case. Continuous wet heat is valuable. Control of the pain by morphia is usually obligatory. It is our experience and belief that the prognosis will depend upon the degree of the inflammatory change. If it is not yet suppurative, convalescence will be fairly certain and prompt. If the gland and periparotid tissues are necrotic, recovery will be slow if at all.

Probably in all threatening cases of forty-eight hours' duration, and certainly in all fulminating cases, radical early drainage is correct treatment.

CONTROL OF POST OPERATIVE TONSILLAR HEMORRHAGE*

J. C. Tucker, M. D., Beatrice, Nebr.

It is not my object to tire you with a long paper on this subject but I feel there are a few points which can be stressed to practical advantage. In this particular locality a large number of tonsil operations are done by men doing general surgery.

If possible give your patient a little preoperative care. A good general rule to follow is to avoid operation on the tonsils in the pressence of acute inflammation. (Cases of cerebral, usually temporal lobe abcess, have been reported).

Give 60 grains of Calcium Lactate the day before operation.

Take the coagulation time of the blood when possible and if it is over nine minutes give your patient calcium lactate and fibrogen (Merrell), thromboplastin or coagulose, and wait until the normal clotting time is reached. In the presence of severe anemia it is well to try to build up your patient's general condition before operation. As much as possible avoid operation during the presence of any acute infection, as your patient's resistance to trauma, shock and post operative infection will be below par.

Have your lighting system so arranged that you get good visibility of the operative field. My own personal choice is that no light is as good or intense as a head mirror and reflected light, as it eliminates all shadows.

Tonsillectomy is rapidly coming to be considered more of a major operation than formerly and it is quite generally conceded that it is best performed in a hospital and the patient safer if left under hospital regime for one or more days.

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*Read at the Third District Medical Society meeting, Auburn, Oct. 29th, 1925.

Use the same precautions in sterilization of instruments, and hands as in any other surgery. One is working in an infected field but additional filth will not help matters.

Have catgut or whatever suture materials and needles necessary ready during operation and tie off bleeding points when encountered as you would in any other operation. At the Hepperlen Clinic we rely on number 1—ten day chromic catgut, but I see no reason why linen or silk is not equally good. We have tried them all but prefer the catgut as it is only required that it hold for a few days.

A distinct fibrous capsule separates the tonsil from the surrounding structures. This capsule is a particularly important landmark. Whatever the technique employed in removing the tonsil, the two essentials are (1) removal of the tonsil together with its entire capsule; (2) control of hemorrhage.

If a portion of the capsule remains, it means an incomplete tonsillectomy, and frequently subsequent histories of patients indicate that such operations do more harm than good.

The blood supply of the tonsil is from the following sources:

1. The tonsillar ramus of the external maxillary artery. It is important to remember that the main trunk of the external maxillary artery, after leaving the external carotid, may take a decided upward bend before it passes around the ramus of the jaw. The loop thus formed comes into close relation to the inferior portion of the tonsil, and in removing a tonsil, this large artery may be cut unless the field of operation is kept dry and the dissection made as close as possible to the capsule.
2. A large branch of the lingual artery enters near the inferior extremity of the tonsil behind. In order to do a complete tonsillectomy, we have found it necessary to ligate this vessel in almost every case either, child or adult.
3. The upper portion of the tonsil is supplied by one of the pharyngeal rami of the ascending pharyngeal artery and by the descending palatine artery a branch of the internal maxillary.

With this blood supply in mind, we have four chief points to watch for hemorrhage, two of them near the upper part of the fossa and two of them below. During the operation we will see more veinous bleeding than arterial but as the veins follow the arteries and are so near, when we pick up one we are very apt to get both artery and vein.

We tie these vessels either as they are encountered or immediately after removal of the tonsil. No especial instrumentation is required except a long, rather sharp pointed and slightly curved hemostat. The one designed by Dr. H. I. Lillie of the Mayo Clinic, and put out by Sharp & Smith is very good. However, any long hemostat is O. K. We use their instruments by choice as they are simple and they were the first people we observed doing this work in a systematic way.

It takes a little practice to tie in the tonsillar fossa, but it is a useful procedure and one which I think every operator attempting tonsil surgery should master. The chief difficulties to master are the fact that blood and mucous from the field gets on instruments, ligatures and fingers, but a little practice soon minimizes this.

Another good method which I first saw used by Dr. Dack of the Earl Clinic, St. Paul, Minn., is to use number 3 or 4 catgut and making a slip knot and catching the short end of the ligature in a toothed hemostat and slip this over the hemostat which has the vessel engaged. This method is very simple and effective for the vessels at the upper part of the fossa. The catgut must be dry in order that it will slip through the noose when tying the knot.

Another very good and simple method is, after engaging the vessel you wish to tie with a hemostat, to pick up a small bite of the tissue with a small full curved cervix needle which fixes the ligature and facilitates tying. We used this quite extensively at first but in the last two or three years have been able to tie most of the vessels without a needle. We still find the needle quite useful in those patients operated under a general anaesthetic.

Some very good operators as Dr. Goddard of Philadelphia, control their hemorrhage by using cautery over the fossa. We have had no experience with this method. Ligature or suture appeals to us as more exact, easier and expeditious and as less liable to cause injury to the fascia and muscles.

We have seen several cases of post operative hemorrhage which came on from one to ten days following operation in which we failed to be able to check it by hemostat or suture, the reason being that the field is somewhat obscured by the exudate and the hemorrhage seems to be a general oozing from the entire wound instead of from any special points which we could locate. We have followed 2 methods in these cases. First cleanse the fossa of scab, exudate clots and detritus by swabbing out with a little peroxide, then temporarily dry the field by holding a plug of gauze saturated with adrenalin in the fossa. This will usually check the bleeding for a few minutes or long enough to give you an opportunity to place some sutures. Suture the pillars together by the method of McReynolds. If this does not control it entirely we remove these sutures and then suture a small roll of gauze about 0.5x0.5x2 cm long, saturated with coagulose or thromboplastin between the two pillars which gives pressure. We insert the sutures first, usually two are sufficient, one at the upper part of pillars and one about the level of insertion of anterior pillar in base of tongue; then the roll of gauze is tucked beneath sutures over bridge of fossa and the sutures tied just tightly enough to exert some pressure but loosely enough to prevent tearing through the pillars. These sutures and the gauze pack can usually be removed in twenty-four hours.

If a patient begins to bleed a few hours or days after tonsil operation he is immediately put to bed. Place ice coil to throat. Give morphine gr 1/4 by hypo to adults. Try control of hemorrhage by pressure of gauze pledgets on hemostat. Anaesthetize throat as well as possible with novocaine or cocaine solution. Apply ligatures if possible. If unable to ligate try suture.

We have very little use for the various tonsil clamps on the market. In our hands they have been found to be inefficient. From the patient's viewpoint they are troublesome, painful and inefficient.

References: Relation of tonsillar and Nasopharyngeal Infections to General Systemic Disorders by S. J. Crowe, S. Shelton Watkins and Aldma S. Rothholz. (From the Department of Laryngology, Rhinology and Otology of John Hopkins University and Hospital).

MEDICAL MEETINGS*

C. L. Hustead, M. D., Falls City, Nebr.

Medical meetings are intended primarily for the presenting and discussing of scientific subjects pertaining to the practice of medicine and surgery and the success of the meetings depends largely upon the subjects presented and the interest shown in the discussion of the papers. Medical meetings are very essential to the practice of medicine—they stimulate the physicians to more study and better work. It is a well known fact that the fellow who stays by himself gradually sinks into a rut and he cannot improve unless he has some one to pattern after. The subject chosen for this paper is not a medical topic and yet it has to do with the nonscientific part of our medical meetings. It is my opinion that if our medical meetings were devoted entirely to the scientific study of medicine and no attention paid to the social side the meetings would be a complete failure. First of all in order to have a successful medical society we must have good attendance and good fellowship, and good fellowship cannot be cultivated unless we can get the fellows together. Practically all of my doctor friends have been made at gatherings of this kind where we mingle together and become acquainted with each other; while on the other hand my knowledge of medicine has been largely obtained from my college training, my library, meetings like this and from experience. I look forward to medical meetings as a time when we get diversion from our regular routine work and it has been my pleasure at these meetings to cultivate the acquaintances of fellow practitioners whom I have on numerous occasions been glad to mention as my friends. It might be well at this time to say something about the fellow who has been accused of being unprofession or unethical. I am not so sure that some of the faults found with him did not lie within ourselves when all the numerous little things were taken into consideration. Medical meetings have been the means of overcoming many of the little professional jealousies of which most doctors have a plenty. There are two very important functions to be performed by medical meetings: first, the scientific which furthers the interest in medicine by the interchanging of ideas and personal experiences; and secondly the social function. If none other than the social side is improved, I still believe that medical meetings fulfill a most important place, but I have yet to attend a medical meeting of any kind that I did not receive many ideas which have proved to be of value to me in my practice. At a recent meeting of the Inter-State Post Graduate Assembly of America, Dr. John B. Deaver, Emeritus Prof. of Surgery,

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*Read at annual meeting, Third Councilor District, Medical Society meeting, Auburn, Oct. 29th, 1925.

University of Pennsylvania School of Medicine, in discussing some facts about gallbladder disease said, "In palpating a gallbladder —have the patient take a long deep breath and hold it" explaining to his hearers that the gallbladder became fixed in this position, that the expansion of the lungs pushing the diaphragm and liver downward brought the gallbladder close to the costal margin, giving the palpating hand a chance to feel of its pathology. I heard physicians say, "Well, that's an easy thing to have the patient do, but it never occurred to me to do it that way."

Duodenal drainage of the gallbladder by the tube method, a subject which has been much debated was discussed by Dr. Deaver, who stated that an inflamed gallbladder should be kept at rest the same as other inflammations, and that the passing of the tube aggravated this condition; that patients, who had many times had this treatment rendered them, finally came to the operating table for relief and that the doctors who continued to practice this procedure brought "grist to his mill." In listening to men of the reputation of Dr. Deaver and physicians who use the tube for gallbladder drainage, one will gain the impression that the question has not yet been solved and physicians hearing these different statements are in a position to give guarded recommendations to their patients. I have on a few occasions been consulted by patients suffering from choleocystitis who have been advised to have this treatment with the assurance that the procedure would cure their condition without operation. I believe from free discussion of medical papers at our meetings more will be obtained than from the reading of only the articles, and we get the different opinions and the successes of different authorities which information we carry back to our patients and in the end make a more satisfied clientele.

It is really amusing to listen to great men of recognized authority discuss the problem of gastric or duodenal ulcer. Recently I heard Dr. Joseph Sailer, Professor of Clinical Medicine, University of Pennsylvania School of Medicine, say that between 80 and 90 per cent of all ulcers were cured by medical treatment and at the same time heard a great surgeon say, "How do you know it?" "You will never know it is cured until you hold the ulcer in your hand and a gastroenterostomy has been performed." Anyway —medical meetings furnish us food for thought.

Returning to the social side of medical meetings, papers given by men whom you know, know of their attainments in scientific work, their connection with hospitals and universities and particularly the standing they have in the profession, produces an added interest. It is surprising how fast acquaintances grow with those who regularly attend medical meetings and it is, indeed, a pleasure to be able to recognize your fellow practitioners away from home, know them by their names, their locations and the particular things they are doing, but this information is not obtained outside the medical meetings. Not long ago a partnership of two physicians was sued for damages amounting to over $10,000.00, the plaintiff alleging an x-ray burn and while they were not guilty of such negligences they needed testimony from reputable physicians. Did they get it? Yes. From whom? From physicians whose acquaintances had been established in meetings of this kind and men who rank highest in the profession. As a contrast to this the star witness for the plaintiff was a physician who to my personal knowledge has not belonged to any medical society or attended a medical meeting for a period of over twelve years. Another interesting incident connected with this case occurred when the plaintiff's attorneys sought to obtain affidavits of physicians living at distant places because they could not get testimony to their liking at home, but in every instance the affidavits taken were not used, first because they were given by men who stood for the principles of medical ethics and secondly, they were of no value to them in trying their case. The business side of the practice of medicine is one thing that some physicians have not considered quite carefully enough. I have known physicians who at some time in their practice figured the taking of other physicians' patients perfectly all right. No questions being asked the change would be made but much to the regret of the original attending doctor. This custom I believe has practically been abandoned—especially by physicians who are members of their local societies and men who have been rubbing shoulders together in their daily routine in the practice of which I believe to be the greatest of all professions. Medical meetings then have been the source of bringing physicians together socially and as friends and not as business competitors.

PROCEEDINGS, ANNUAL COUNCILOR MEETING

Lincoln, Nebraska, January 7, 1926.

The annual meeting of the councilors, Nebraska State Medical Association, was held at the Lincoln University Club January 7, 1926. Dinner was served at 6:30 o'clock after which the meeting was called to order by Dr. A. P. Overgaard. Those present were: Drs. A. P. Overgaard, A. E. Cook, H. E. Potter, R. D. Bryson, C. A. Selby, F. W. Plehn, C. P. Fordyce. The Committee on Journal and Publication and the Program Committee were also present at the dinner.

Election of officers followed: Dr. Cook was elected chairman, and Dr. Ovargaard reelected as secretary. The regular routine of business was then taken up.

The Librarian's report was read. A motion was made that this be accepted and placed on file. Seconded and carried.

The Campaign Committee report was read. Motion made that the Campaign Committee report be accepted and placed on file. Seconded and carried.

Report of the Committee on Contagious Diseases was read. Motion made that this report be accepted and published. Seconded and carried.

Report of the Secretary was read. Motion made that this report be accepted and published. Motion seconded and carried.

Moved by Dr. Bryson that the secretary of Council instruct chairman of the Public Activities Committee to prepare an outline of what he wants to do, what he wishes to spend money for, and how much is required. This to be presented at the first meeting of the council at the annual meeting. Seconded and carried.

The report of the Program Committee was read. Motion made that the report of this committee be accepted and placed on file. Motion seconded and carried.

The Committee on Public Policy report was read. Motion made that this report be accepted and placed on file. Seconded and carried.

The report of the Committee on Counsel on Medical Education and Hospitals was read. Motion made that this report be accepted and published. Motion seconded and carried.

The Defense Committee report was read. Motion made that this report be accepted and placed on file. Seconded and carried.

The chairman appointed Drs. Selby, Bryson and Fordyce as an auditing committee to audit the treasurer's reports.

Report of the Auditing Committee:

To the Council of the Nebraska State Medical Association:

Your Auditing Committee wishes to report that they have examined the financial statements of the General Fund, the Journal Fund, and the Defense Fund and find them as reported.

Drs. Selby, Bryson & Fordyce,
Auditing Committee.

Moved that the Financial Reports be accepted and published. Seconded and carried.

Motion made that the report of the Auditing Committee be accepted and published. Seconded and carried.

Motion made that flowers be sent to Mrs. Chas. F. Hardy and also to Dr. H. J. Lehnhoff. Seconded and carried.

Moved and carried that as an emergency has arisen, the Defense Fund being short, the Secretary shall transfer $680.20 to the Defense Fund.

Moved that it is the sense of the council that when a councilor is elected president that his office of councilor does not become vacant. Seconded and carried.

Meeting adjourned.

R. B. Adams, Sec.-Treas.

SECRETARY'S REPORT

The Nebraska State Medical Association ended the year 1925 with a total membership of 1209. Of these 1190 were paid members and 19 were honorary. This membership passes the previous largest membership year (1922) by 3 members. It also shows a gain of 30 over 1924. During 1925, sixty members became delinquent and 88 new members were obtained. Two members transferred to other states.

During the year, letters were sent to all delinquent members early in April. This the secretary thinks was well worth while for on April first there were 190 delinquent, and this was reduced to 66. Also in December of this year, letters urging membership were again sent to all members reported as eligible by the county secretaries. The result of this, of course, it is not possible to estimate, but the Secretary feels that this procedure late in 1924 was to a great extent responsible for the increase in membership.

Cheyenne County has been recently organized with a membership of seven.

Your Secretary attended the Annual Conference of Secretaries at Chicago in November. He brings back from this meeting two subjects that will soon have to be considered and advanced by our Association:

1. Periodic Health Examinations. The American Medical Association has been preparing this work as an educational program for 2 or 3 years and is now about ready to launch it, insisting that all State Associations carry it through.

2. Form a working organization with other organizations doing Public Health work. This has also been urged by the A. M. A. for several years. Your Secretary asked for a Public Affairs Committee to do this work and he has turned what material he has obtained over to it. At present no results have been obtained, and as the A. M. A. is insistant that this work be done, your Secretary feels that he is ordered by them to make this report. Ten or twelve states have this organization and are getting good results. Most of these have been formed in the last two years. With this organization an educational program is being carried on and good results produced. The idea of public health examinations is carried to and taught to the laity by this means. One result reported by the different states is that wherever a definite publicity campaign has been attempted it has resulted in a boomerang. They all advise now to carry on the educational program and let publicity be incidental.

R. B. Adams, Secretary.

REPORT OF THE COMMITTEE ON THE CARE AND PREVENTION OF CONTAGIOUS DISEASES

Your committee has not learned of any large epidemics in the state in the past year. In the larger cities there have been the usual number of contagious diseases with no marked virulence nor unusual numbers. In the southern central part of the state early in the year there were some rather virulent scarlet fever cases. Some of these, to the knowledge of the committee, have been treated with antistreptococcic serum with good results. Other reports of antistreptococcic serum in scarlet fever are encouraging. It should be given a trial.

A more general use of toxin antitoxin would undoubtedly lessen the frequency and severity of diphtheria. This measure would do more to control diphtheria than any other.

Respectfully submitted,
H. B. Hamilton, Chairman.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

As chairman of the committee on Medical Education and Hospitals, I desire to make the following report:

The committee has found that, with the demand on the part of the medical schools to have their graduates take internship work in an accredited hospital, several of our hospitals have become anxious to be inspected and accredited. Accordingly, we have examined or re-examined the following hospitals: St. Catharine's at Omaha; the Wise Memorial at Omaha; St. Elizabeth's at Lincoln; and the Lincoln General at Lincoln. I understand others are expecting to request an inspection soon.

This is the last year the medical schools, now requiring accredited hospitals for their internship work, will permit graduates doing work in non-accredited hospitals. Doubtless those wishing interns will now be more particular about having official inspection.

The Council of the A. M. A. requires us not only to inspect new hospitals, but where it seems advisable to re-inspect the old ones. Also, we are requested to report hospitals that are in a position to give excellent experience and instruction in specialties to those who have already served a general internship. This request is made in order to find approved residences in specialties.

Dr. Irving Cutter's removal from the state has necessitated the appointment of a new man on the committee. Dr. MacQuiddy of Omaha has assisted in the last three inspections.

Your committee has had to receive instructions of any kind from its superiors in the State Association. If our work is not to your liking, or if you have suggestions to make, we will welcome them.

With the season's greetings, we desire to remain.

Yours respectfully,
J. S. Welch, Chairman.

DEFENSE FUND

STATEMENT OF INVESTMENTS

Jan. 1, 1925 to Dec. 31, 1925.

Investments on Hand, Jan. 1, 1925:		
Cash held by Peters Trust Co.	$ 175.00	
Securities held by Peters Trust Co.	2,500.00	
Total Jan. 1, 1925		$2,675.00
Interest Credited During Year		130.17
		$2,805.17
Cash Transferred:		
Trustee's Fee, Years 1922 to 1925	$ 25.00	
To Checking Account	1,200.00	1,225.00
Investment on Hand, Jan. 1, 1926		$1,580.17
Represented by:		
Cash held by Peters Trust Co.	$ 80.17	
Securities held by Peters Trust Co.	1,500.00	$1,580.17

STATEMENT OF CASH RECEIPTS & DISBURSEMENTS

Jan. 1, 1925 to Dec. 31, 1925.

Cash Receipts:		
Share of Dues Received from General Fund	$1,190.00	
Interest Received	4.83	
Investment Transferred	1,000.00	
Interest Rec'd, Peters Trust Co.	200.00	
Total Cash Receipts		$2,394.83
Cash Disbursements:		
A. S. von Mansfelde, Salary	$ 600.00	
A. S. Von Mansfelde, Expense	50.00	650.00
Attorney Fees:		
R. M. Switzer	$ 200.00	
Bernard McMerny	200.00	
H. A. Bryant	107.50	
H. A. Bryant (1924)	925.00	
David Fitch	200.00	1,632.50
Total Cash Disbursements		$2,282.50
Excess Cash Over Disbursements		112.33
Cash on Hand, Jan. 1, 1925		.42
Balance Dec. 31, 1925		$ 112.75

GENERAL FUND

STATEMENT OF CASH RECEIPTS & DISBURSEMENTS

Jan. 1, 1925 to Dec. 31, 1925.

Cash Receipts:		
Membership Dues	$5,946.00	
Interest Received	35.29	
Total Cash Receipts		$5,981.29
Cash Transferred to Other Funds:		
Journal Fund	$2,083.00	
Defense Fund	1,190.00	
Journal Fund, to Correct Check	4.50	3,277.50
Balance Available for General Fund		$2,703.79
Cash Disbursements:		
Salaries:		
R. B. Adams		$ 600.00
Office & Administrative Expense:		
Rent	$ 215.00	
Telephone	75.15	
Printing	64.45	
Stamps & Office Supplies	122.00	
Secretary State Fee	1.00	
Insurance Premium	5.00	
Typewriter Purchased	65.00	547.50
Miscellaneous Expense:		

Councilors' Expense	$ 308.35	
Program & Talent	104.99	
R. R. Fare	7.92	
Annual Meeting	35.65	
Jennie Rozelle	1.00	
One Member Overpaid	5.00	
F. A. Long, 1924, Stationery and Postage	35.00	
Huse Publishing Co., Programs	43.75	
Flowers	2.00	
Auditor	30.00	
Two A. M. A. Directories	24.00	
Fred Foster	350.00	
A. M. A. (Membership Cards)	7.50	
Photo Specialty House	3.15	
Overstreet Sign Co.	5.10	
Latch Bros.	41.25	$1,003.66
Delegates and Convention Expense:		
A. D. Dunn	$ 101.18	
J. S. Welch	51.08	
J. P. Lord	95.38	
Alice C. Gilchrist (Stenographer)	145.00	392.64
Total Disbursements Year 1925		$2,543.90
Excess Cash Receipts Over Disbursements		159.89
Cash on Hand, Jan. 1, 1925		972.65
Balance—Cash on Hand, Dec. 31, 1925		$1,132.54

GENERAL FUND

STATEMENT OF INVESTMENTS

Jan. 1, 1925 to Dec. 31, 1925

Investments on Hand, Jan. 1, 1925:		
Cash held by Peters Trust Co.	$ 172.50	
Securities held by Peters Trust Co.	3,500.00	$3,672.50
Balance in Account — Omaha Loan & Building Association		1,138.09
Total Jan. 1, 1925		$4,810.59
Additions to Investments During Year 1925:		
By: Interest Credits — Peters Trust Co.	$ 291.35	
Dividend Credits — Omaha Loan & Bldg	63.43	354.78
		$5,165.37
Withdrawals During Year 1925:		
Trustee Fee Years 1922 to 1925		30.00
Investment on Hand, Jan. 1, 1926		$5,135.37
Represented by:		
Cash held by Peters Trust Co.	$ 433.85	
Securities held by Peters Trust Co.	3,500.00	
	3,933.85	
Balance in Account — Omaha Loan & Building Association	1,201.52	$5,135.37

JOURNAL FUND

STATEMENT OF CASH RECEIPTS & DISBURSEMENTS

Jan. 1, 1925 to Dec. 31, 1925.

Direct Journal Receipts:		
Advertising Space	$4,362.09	
Cuts	116.36	
Copies Sold	7.20	
Subscriptions	44.00	
Dividend Cooperative Advertising Bureau	129.92	
Total Direct Receipts		$4,659.57
Shares of Dues Rec'd from General Fund		2,083.00
Total Receipts from All Sources		$6,742.57
Direct Journal Disbursements:		
Salaries:		
F. A. Long	$1,200.00	
R. B. Adams	1,146.15	
Ivy M. Campin	53.85	$2,400.00
Publication Expenses:		
Huse Publishing Co.	$3,996.86	
Baker Bro. Eng. Co.	139.37	
Capital Engraving Co.	183.12	
Universal Press Clipping Bureau	42.00	$4,361.35
Miscellaneous Expense:		
Omaha Expense, Ivy M. Campin	$ 4.96	
Martin, Cole & Buckley	30.00	
Gen. Fund, to Sub. P. D. Kelly$	2.50	
Herman Goldberger, Sub. Refund	2.50	
Star Mail Publishing Co.	4.50	$ 44.46
		$6,805.81
Excess Disbursements Over Cash		$ 63.24
Cash on Hand Jan. 1, 1925	$2,204.43	
Less Excess Disbursements	63.24	
Balance Cash on Hand, Dec. 31, 1925		$2,141.19

JOURNAL FUND

STATEMENT OF INVESTMENTS

Jan. 1, 1925 to Dec. 31, 1925.

Investments on Hand Jan. 1, 1925:		
Balance in Account — Omaha Loan & Building Association	$2,187.92	
Balance in Account — Mutual Saving & Loan Association	1,224.62	
Total Jan. 1, 1925		$3,412.54
Additions to Investments:		
Dividend Credits — Omaha Loan & Bldg. Association:		
July 1, 1925	$60.16	
Dec. 31, 1925	61.82	$ 121.98
Dividend Credits — Mutual Savings & Loan Association:		
July 1, 1925	$36.72	
Dec. 31, 1925	37.84	$ 74.56
Total Dividend Credits During Year 1925		$ 196.54
Investments on Hand, Jan. 1, 1926		$3,609.08
Represented by:		
Omaha Loan & Bldg. Association	$2,309.90	
Mutual Savings & Loan Association	1,299.18	$3,609.08

THE NEBRASKA STATE MEDICAL JOURNAL

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Vol. XI February No. 2

ROSTER OF OFFICERS

	Term Expires
Dr. H. J. Lehnhoff, Lincoln, President	1926
Dr. E. O. Weber, Wahoo, Vice President	1926
Dr. R. B. Adams, Lincoln, Secretary-Treasurer	1927
Dr. W. P. Wherry, Omaha, Librarian	1927

COUNCILORS

Dr. R. D. Bryson, Calloway	1926
Dr. W. S. Fast, Ingleside	1926
Dr. C. A. Selby, North Platte	1926
Dr. F. W. Plehn, Scottsbluff	1926
Dr. A. P. Overgaard, Omaha, Secretary	1927
Dr. H. J. Lehnhoff, Lincoln	1927
Dr. C. P. Fordyce, Falls City	1927
Dr. A. E. Cook, Randolph, Chairman	1927
Dr. S. A. Preston, Fremont	1928
Dr. Frank Tornholm, Wahoo	1928
Dr. W. J. Douglas, Atkinson	1928
Dr. H. E. Potter, Fairbury	1928

DELEGATES TO A. M. A.

Dr. A. D. Dunn, Omaha	1927
Dr. R. W. Fouts, Omaha	1926

DELEGATES, COUNCIL ON MEDICAL EDUCATION, A. M. A.

Dr. J. S. Welch, Lincoln	1926

MEDICO-LEGAL DEFENSE COMMITTEE

Dr. A. S. v. Mansfelde, Ashland, Chairman	1927
Dr. Czar C. Johnson, Lincoln	1928
Dr. R. B. Adams, Lincoln, Secretary	1927

Note: In case of suit notify secretary at once.

COUNCILOR DISTRICT MEETINGS AND COUNCILORS

The Councilor District meetings in Nebraska are rapidly growing in interest and importance as anyone who has observed the trend of the times must know. The programs put on during the year 1925 have varied from all local talent, a mixture of local and metropolitan city talent, to all imported talent. A notable feature of the last few years has been the attendance of the State Association presidents at all or nearly all the district meetings—the best indication that the men elevated to the office of president feel the responsibility to the profession that has honored them. The Council has within recent years developed into a strong and serious functioning body with constructive ideas. Much praise was bestowed on the councilors of the several states at the recent conference of state secretaries and editors at Chicago, but the writer came away with the impression that the Council of the Nebraska State Medical Association is the equal of any, and that if the membership will follow the lead of the councilors the organized profession will accomplish something worth while.

DR. CARL HEDBLOM, PROFESSOR OF SURGERY, UNIVERSITY OF ILLINOIS

Dr. Carl Hedblom, for the past one and one-half years professor of surgery at the University of Wisconsin, Madison, has accepted a professorship of surgery in the University of Illinois College of Medicine to take effect February first.

The particular interest of the above item to the Nebraska profession is that Dr. Hedblom spent his boyhood years on a farm in the Marquette community, in Hamilton county, Nebraska; that he at one time attended the York Business college, and the Fremont Normal school and that one summer vacation-time he sold books in rural Nebraska.

Dr. Hedblom is a graduate of Harvard Medical School, 1911 and was an interne at the Massachusetts General Hospital. He is a Ph. D., of the University of Minnesota. He was professor of surgery in the Harvard Medical School of China from 1913 to 1916. Since returning from China he spent 8 years at the Mayo Clinic and in 1919 he was appointed head of the section of general thoracic surgery at the Mayo Foundation.

It was the rare privilege of the editor to spend a half day last November in Dr. Hedblom's clinic at the Wisconsin General Hospital at Madison, where he received a most cordial welcome and got more real practical information out of the clinic than in any previous experience.

PAY YOUR DUES

Annual dues are delinquent since January. Send $8.00, plus the amount of your county society dues to the secretary of your county society, without further delay.

—R. B. Adams, Sec.-Treas.

LAY ORGANIZATIONS

For the last three or four years the American Medical Association has been urging each of the State Associations to form a working organization of some sort with all bodies in their respective states that are interested in Public Health Work, such as The State Dentists' Association, etc. This organization is to be represented by a committee composed of members from each group. With this organization, the educational work that our own profession has to do at all times can be carried on much more rapidly and much more effectively, and we will be able to help the other members of the group in the same way. Ten or twelve states have already formed such organizations and are reporting progress which is highly satisfactory. They are able to get their views to the laity better than ever before and when the laity understand they have always been ready to help.

This short article is written to call attention to this opportunity and to ask each member to do his part in furthering the formation of such a body.

—R. B. Adams.

POST-GRADUATE MEDICAL EXTENSION WORK

Postgraduate Medical Extension work has been experimented with by Medical Education centers in several states for a period of years. Last March the conference at Chicago on Medical Education, Medical Licensure, Public Health and Hospitals, listened to reviews of this work from several states.

The endeavor is to carry Post-Graduate Medical Education to a community or district suitable to the needs of its particular practitioners, by medical education centers of repute therein situated. Various state universities have presented to the outlying doctors of their respective states a postgraduate program or course in the home environment of these doctors. The organized teaching staff of the university with the needed equipment and technicians, present the clinics, lectures and demonstrations in local hospitals or other suitable places. Some have even motorized a teaching unit. Wisconsin and Pennsylvania have been leaders in the work.

Such a very small per cent of doctors ever get away for any sort of post-graduate work, that one readily sees how desirable the work is. Also, the work has been so agreeably received and the apparent results so favorable that the continuation of the work is the only logical conclusion.

But, how? Not all states have medical schools, and not all medical schools have available funds. This requires much reduplication of teachers, equipment and overhead. The fact remains that the general practitioner is the nation's first line of defense in health matters. No nation has a great asset than the health of its people. The responsibility of the task must be assumed by somebody. It has been suggested that one of the national medical or surgical organizations enter the field. There are several reasons for this.

First, their survey of the hospitals in recent years familiarizes them with the existing and different needs.

Second. They function nationally or even more widely, and cooperation from the first would be assured.

Third. Their organization goes into all districts and arrangement work in outlying regions could be carried forward inexpensively.

Fourth. It would be a logical means of further aiding in hospital improvement and education of the people concerning correct purposes of hospitals in a community without further adding to the hospital day cost, or making the so-called hospital standardization more top-heavy.

Fifth. It would carry a step further the idea of making the hospital not only a place for the sick and injured, not only a teaching center for the doctor, interne and nurse, but a teaching health center for the layman as well. The day must soon come when the layman will know and feel that the hospital is as safe and secure a place to go for aid when sick or injured as the First National Bank in his community is when he is in need of service in business or finance.

Because Nebraska is a western agricultural state with a high per cent of general practitioners, this idea of post-graduate medical extension work should be a live topic.

—J. S. Welch.

"BATS, MOSQUITOES AND DOLLARS"*

Dr. Campbell is the apostle of the bat cure for malaria. I imagine I am not different from the majority in having heard something about the cultivation of bats for their anti-malaria powers but have not considered it at all seriously. This book, written in a very personal style, gives in detail the work of the author in establishing the value of bats in malarial districts and apparently proves that they have been of great value there, as at Mitchell's Lake near San Antonio, conditions without them were so bad as to make the territory practically uninhabitable. The time and labor and pertinacity which the author has displayed in this work will certainly place him among American medical heroes. He has, after many discouraging failures, perfected a type of bat-roost which attracts these animals; and as beside helping rid the country of mosquitoes, each roost produces annually from one to two tons of valuable bat guano, the towers more than pay for themselves in a short time. What we miss in the book is a detailed description of the construction of these bat-towers. Doubtless they will be supplied by the author upon application.

Bats, however, are useful only where the problem is concerned with night-flying mosquitoes. For reducing the number of day-flying species, the author has given special attention to dragon flies and to methods of favoring their increase.

One section of the book is used to discuss Dr. Campbell's theory of the transmission of smallpox by the bed-bug. Experiments which he has carried out, remind one of the labors of the early investigators of yellow-fever. Apparently his clinical evidence strongly indicates that the disease is not transmitted by any other means; in other words, that it is not directly contagious and requires an intermediate host; but this theory will doubtless not be received without much opposition. Aside from its scientific and practical value, the book is a most interesting human document.

—H. G.

The total paid up membership, Nebraska State Medical Association, for 1925, was 1,209, the highest ever attained. By the middle of January, 1926, a greater number had paid dues for the current year than had paid at the same time last year, in face of the raise of dues to $8.00.

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*By Dr. Charles A. R. Campbell. The Stratford Company, Boston.

OMAHA PHYSICIAN FOUNDS MEDICAL MISSION

Dr. H. H. McClanahan, Omaha, well-known pioneer mid-west child specialist and former president (1900-1901) of the Nebraska State Medical Association, sailed from San Francisco, January 2nd, for Cheng Mai, Siam, where he will establish a missionary medical clinic in memory of his deceased wife. It is to be an out-patient clinic and will care for from fifty to one hundred poor and destitute persons a day. Several medical men will be employed.

The Doctor and the late Mrs. McClanahan had been interested for a number of years in the medical mission at Cheng Mai being conducted by Dr. J. W. McKean, who left Omaha, 35 years ago. The clinic planned is to supplement the work of Dr. McKean.

This added service to suffering humanity serves to emphasize more definitely the type of service Dr. McClanahan rendered to humanity during his more active career. By this act he honors the memory of Mrs. McClanahan, he honors himself and in reflection glorifies the medical profession.

AMERICAN COLLEGE OF SURGEONS MEETING, LINCOLN, FEBRUARY 23-24

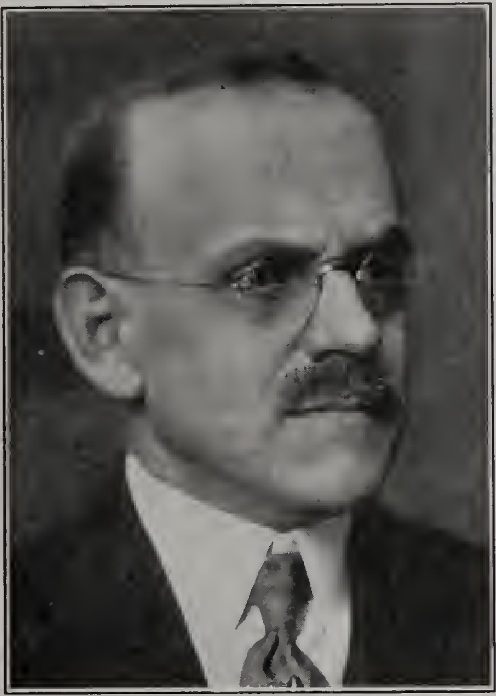
The Nebraska Section, American College of Surgeons, will have a two-day session at Lincoln, February 23rd and 24th, 1926. Headquarters will be at the Lincoln hotel. Dry clinics will have a prominent place on the program and there will be operative work at the several hospitals.

The program is not yet fully worked out but some men of national repute will be present and take part in the sessions.

DR. E. W. ROWE, PRESIDENT-ELECT, RADIOLOGICAL SOCIETY OF NORTH AMERICA

The Nebraska profession has been honored by the selection of one of its honored members as president-elect of the Radiological Society of North America, at the five day session of that body at Cleveland, Ohio, December 7th to 11th, inclusive.

Dr. E. W. Rowe, Lincoln, Nebraska, radiologist, was born at Roberts, Ill., in 1881, came to Nebraska with his parents at the age of five, graduated from the Palmyra high school, and the University of Nebraska, was principal of the Randolph, Nebraska, high school and graduated from Northwestern Medical school, 1905.



He began practice at Wood River, Nebr., but has been in practice at Lincoln, continuously since 1908, except that he served two years in the Army Medical corps.

He was president of the Nebraska State Medical association 1915-16 and was a member of the special committee which obtained the passage of the so-called Fox bill, creating the Department of Health in Nebraska.

EDITORIAL PARAGRAPHS

The narcotic license tax under the Harrison law, it is said, will be reduced to $1.00.

Note that hereafter the price of single copies of the Nebraska State Medical Journal will be 35 cents.

The annual meeting of the Nebraska State Medical Association for 1926, will be held at Omaha, May 11, 12 and 13.

New ads this month are Becton, Dickinson & Co., The Nonspi Company and Abbott Alkaloidal Co. Read the ads!

Common names like measles and digitalis and appendicitis, should not be put in capital letters, when preparing manuscript.

Who's Who in American Medicine has appeared in spite of the doubts cast upon it by implication and this editor confesses that he likes it.

In preparing manuscript for the printer, avoid single spaced typewriting. It precludes correction of errors and causes the typesetter much trouble.

Recent investigations tend to show that uremia is not an urea poisoning but rather a poisoning by the more harmful by-product of metabolism that accumulate in the blood. Urea is a diuretic.

Why is diphtheria ever fatal? The answer is that antitoxin is given too late or in insufficient amount. From this text every physician can read a lecture to himself.

Some authors present twenty-page articles containing two pages of information. Is it any wonder that the rank and file of the profession calls for more practical papers?

Wisconsin has enacted a law requiring all who engage in the healing art to pass an examination in the sciences fundamental to medicine. All other states should do the same.

The 1926 foreign clinic assemblies given under the direction of the Inter-State Post Graduate Assembly of North America sailing from New York, April 28, will cover a territory including the chief clinic cities of Italy, Switzerland, Germany, Austria, Czecho-Slovakia, Holland and Belgium.

Studies of the goiter problem have brought to light some startling facts. Wheat grown in Minnesota, a goitrous region contains but one-ninth as much iodin as wheat grown in Maine, a non-goitrous region. Carrots grown in California, a non-goitrous region, contain about 74 times as much iodin as the same vegetable grown in Oregon, a goitrous region.

Recently in this state two suits for malpractice have been decided against the surgeons by the juries in district court. This is quite the opposite to the usual result in malpractice suits heretofore and is startling in forebodings. As neither of these cases have been heard on appeal the final result may be different, but we do not like it, anyway.

In a case against the Burlington railroad arising out of a crossing accident, the supreme court denied recovery of damages to Dr. Claude Porter, Bridgeport, saying in effect, that the driver must have his car under such control as to be able to stop when he reaches the point where by looking and listening he finds it dangerous to proceed.

On the authority of the Journal A. M. A., it is stated that the income tax law is being rewritten and will probably be materially modified. It is suggested, therefore, that physicians postpone making returns until anticipated modifications are known, or until toward the very end of the time limit which is at present, March 15th.

Vesalius the great anatomist of the sixteenth century was made professor of anatomy at Padua at 22 years of age. He did many autopsies and dissections. While doing an autopsy on a nobleman, on opening the chest he found the heart still pulsating. For this he was condemned to death by the Holy Inquisition, but his sentence was commuted and he died from exposure following a shipwreck.

Writing a treatise for the annual meeting instead of a practical paper is a great mistake. Several such articles were presented to the last annual meeting—one in particular showed a good deal of study and effort. The reaction of the listener is so much better if the essayist gets down to the practical points at once and tells his story in ten minutes, than if he oversteps his time and has to be called at the end of the time limit.

The bill to establish a laboratory for the study of abnormal classes is again before Congress for action. One general purpose of the bill is to determine more definitely the border line between the normal and the abnormal. All facts about human beings, though not immediately available are important; for any fact may be necessary to establish a new truth, in connection with other facts discovered later. Dr. Arthur MacDonald, 100 East Capitol St., Washington, D. C., has the bill in charge.

WOMEN'S AUXILIARY NEBRASKA STATE MEDICAL ASSOCIATION

The Women's Auxiliary of the Nebraska State Medical Association is now assured. It is very evident that the doctors' wives in the cities and out in the state are showing interest in the organization from the growing membership and letters received. A doctor's wife has been appointed in every county to present the privilege of membership to every doctor's wife in that county. A few counties are aiming at a hundred per cent membership.

Through the courtesy of Mrs. J. E. M. Thompson, Lincoln, the president met the members of the committee on constitution and the doctors' wives who solicited membership in Lincoln. The Auxiliary was discussed and it is evident that we have the co-operation of the Lincoln doctors' wives. A few days later, the president had the privilege of spending a day with the secretary-treasurer, Mrs. Clarence Rubendall, Omaha, and together they planned program for the May meeting. Here, too, was realized the hearty co-operation of the Omaha doctors' wives.

Now, it remains for the doctors' wives out in the state to send in their dues and arrange to attend the meeting.

Mrs. F. A. Long, President.
Madison, Nebraska.

AMERICAN BOARD OF OTOLARYNGOLOGY

An examination will be held by the American Board of Otolaryngology in Dallas, Texas, on Monday, April 19, 1926, and in San Francisco, California on Tuesday, April 27, 1926.

Application should be made to the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

ANNOUNCEMENT

The Tenth Annual Congress on Internal Medicine will be held at Detroit and Ann Arbor, week of February 22-27, 1926.

The Congress is devoted to amphitheatre, bedside and clinical laboratory demonstrations as well as to symposia dealing with modern phases of internal medicine. Distinguished guests from abroad, Canada and the leading clinics of the United States will occupy prominent places on the program. Four days will be devoted to the work at Detroit and on one day, the society will be the guest of the University of Michigan at the newly opened eleven hundred bed University Hospital.

All physicians, who are interested in internal medicine and who are members in good standing of their local and national societies are cordially invited to attend the Congress.

Hotel headquarters will b at the Book-Cadillac in Detroit. Information regarding reduced railroad rates, program, hotel accommodations, etc., may be secured from the Secretary-General.

C. G. Jennings, M. D., President,
Frank Smithies, M. D., Sec'y Gen'l,
920 N. Michigan Avenue,
Chicago, Ill.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY

The mid-western section of the above society will have a session at the Fontenelle Hotel, Omaha, Thursday, February 11th, 1926. The profession is cordially invited to attend. A Clinical Congress consisting of operative and dry clinics will be held in Omaha the day preceding (February 10) and a banquet will be given at the Fontenelle Hotel on the evening of the 10th.

WAYSIDE GLEANINGS ON A EUROPEAN JAUNT—SOME BATTLEFIELDS

From Brussels we took a motor char-a-banc to Louvain and Malines, cities that had suffered much by the drive through Belgium. Both places had been badly wrecked by the shelling. Louvain has a beautiful and spacious square or "place" in the center of which stands the beautiful Hotel de Ville (City Hall) and around which square are grouped some of the most important buildings of the city. Most of these were utterly destroyed by the bombardment. A notable exception was the Hotel de Ville which had suffered very little. The Cathedral Saint-Pierre had been badly shelled — nearly all the beautiful art glass windows had been destroyed but repairs had been made by plain glass or boarded up. One end of the cathedral had been blown in by shelling and this had been temporarily repaired by boarding. The wonderful library building with its priceless treasures in books and manuscripts had been utterly destroyed. A new library is being built, largely by American money, and the structure had reached the second story when we saw it. It is understood that sufficient funds are not available at this time to complete the sturcture. The Belgians are a wonderfully industrious people as is evidenced by the almost complete restoration of the cities of Louvain and Malines. The love of the ancient in architecture is well illustrated for the restoration followed the types and lines of the buildings destroyed. Americans would have built buildings of the most modern types.

At Malines, we visited the Cathedral and viewed the Archiepiscopal Palace of Cardinal Mercier. You will recall that it was from this place that Cardinal Mercier issued his famous pastoral letter for which the Germans imprisoned him in his Palace for many months.

Time limited us to a trip to some of the places made notable by the Second Battle of the Marne. Twenty miles east of Paris we passed through Meaux the most advanced position reached by the German scouts. The reader will recall that immediately on receipt of the news that the advanced forces of the Germans were on the outskirts of Paris, General Galleini, then military governor of Paris, commandeered all the taxicabs and all other cars needed, to carry his troops out to meet the oncoming foe, and thereby saved Paris. A statue of General Galleini in heroic mold, at a rural cross-road thirty miles east of Paris, commemorates this event.

Belleau Wood is a forest occupying perhaps a mile of hillside gradually rising from west to east, dropping sharply, but not precipitately, on the east to a level plain. 'On this level plain adjoining the woodland is the American Cemetery of Belleau Wood. Approaching it by the highway one comes to a newly-built stone wall with a gateway through which by a driveway one passes between two buildings occupied by the caretakers, to a parking space for cars. A wire fence, perhaps twelve feet high, surrounds the cemetery and connects with the two ends of the stone wall. Trees have been planted on the inside of the fence and shrubbery back of the burial plot in a low lying embankment, connects with and fades into Belleau Wood, making a beautiful background. The burial plot is absolutely level with a closely cropped green sward. White crosses bearing the identification mark of the soldier buried there, surmount the 2,215 graves in this cemetery. It is a quiet, beautiful, restful place. No part of the entire trip gives us as much satisfaction as to be able to tell people in this country, who may be directly interested in loved ones buried in France, how wonderfully well the American cemeteries, of which this is a type, are kept. We later saw British, French, German and Italian cemeteries, but none is one-fourth as well cared for as the American.

Chateau Thierry, before the war, was a place of but 1300 people. It shows the marks of the shelling very badly today. A monument on the principal corner of the town commemorates the work of the American Marines in recapturing the place.

Along the highway between Chateau Thierry and Rheims, one sees many evidences of the terrific struggle there waged. Thousands of acres of former agricultural lands have not yet been restored to cultivation. Craters, dugouts, trenches, remains of barb-wire entanglements and miles of little narrow-gauge industrial railway, built for war purposes, are seen all about.

Rheims, before the war, had a population of 141,000; it now has 90,000. Twenty thousand civilians were killed during the bombardment. The city was under shell-fire for four years and one month. Promptly at midnight, every night, the shelling began as if designed to break the spirit of the people. The once beautiful Rheims Cathedral was so badly wrecked that it has not been used for worship since the war. It is being restored gradually, but it is said it will cost $5,000,000 to restore it. Rockefeller has given $1,000,000 toward its restoration. The city, in all parts, bears the marks of the terrific shelling and the difference in population before the war and now probably largely explains why restoration has not progressed further.

Barry-au-Bac was wiped out by the war. Today one side of a street is built up in a temporary manner. Hill No. 108, a gypsum rock formation, one-fourth mile from Barry-au-Bac, was a strategic point much coveted by the Germans. Not able to shell it successfully, or to take it by storm, a tunnel requiring two years to complete was driven from the Hindenburg Line, 2¼ miles away, under the river and canal and Hill No. 108 was blown up, entombing about 2500 French soldiers whose remains lie buried where they fell.

A glance at a small fraction of the Hindenburg Line revealed trenches, dugouts, tunnels, mortar emplacements.

We also visited Chamery (where Quenten Roosevelt fell), Chemin-des-Dames, Craonne, Soissons and some other places, but time and space forbid prolonging the story.

—F. A. L.

THE SOCIETIES

Before the **Gage County Medical Society**, Beatrice, January 5th, Dr. C. P. Fall, Beatrice, gave a talk on his observations on medical practice in Great Britain. Among other things he stated that British physicians pay 40% of their incomes in taxes.

Dr. C. G. Baird, Beatrice, was elected president, Dr. L. E. Penner, vice president, and Dr. F. W. Buckley, secretary-treasurer.

The **Box Butte County Medical Society** over an annual dinner with the staff of St. Joseph's hospital, Alliance, December 5, elected **Dr. C. E. Slagle**, Alliance, president, Dr. John McCoy, Alliance, vice president, and Dr. L. E. Sleeper, Crawford, secretary-treasurer.

The annual meeting of the **Madison County Medical Society** (including Stanton, Pierce and Antelope) was held over a dinner at the Pacific hotel, Norfolk, January 12th.

Four new applicants were admitted to membership. Dr. Percy Allerton, Tilden, was elected president, Dr. Frank Salter, Pierce, vice president, Dr. E. L. Brush, Norfolk, was reelected secretary-treasurer and Dr. J. D. McCarthy, Elgin, delegate.

The reason for the change of dues from $5.00 to $8.00 and the working of Medical Defense under the state association was explained by Dr. F. A. Long, Madison.

A round table discussion on the Heart completed the program.

The **Thayer County Medical Society** held its annual meeting at Hebron, January 14th, with twelve of its thirteen members present. The following officers were elected: President, Dr. H. W. Saylor, Bruning; vice president, Dr. J. G. W. Westerhoff, Carleton; Sec'y-Treas., Dr. Rudolph F. Decker, Byron; Delegate, Dr. F. A. McGrew, Deshler.

During the past year, the society lost its president, Dr. U. H. Squires, for 25 years a practitioner at Hebron, through death. Dr. G. A. Birdsall of Fairbury, who for 30 years was in practice at Alexandria, before his removal to Fairbury, and who had at one time served the society for three terms as president, also passed to his reward. Proper resolutions were adopted by the society.

Dr. F. A. Mountford, Davenport, read a paper on "Erysipelas—A Case Report." A severe cellulitis of the forearm was a serious complication in this case. Dr. R. F. Decker, Byron, read a paper on "Chorea or Epilepsy, A Case Report."

Following the meeting, Drs. Arthur and Loetta Bowles entertained the society members and wives at a delightful luncheon.

—R. F. Decker, Sec.-Treas.

The **Omaha Medical Women's Society** was entertained at a dinner by Dr. Mattie L. Arthur, retiring president, January 8th. Dr. Alice Kani, Omaha, was elected president, Dr. Katharine M. Hunt, secretary-treasurer.

The **Richardson County Medical Society** Jan. 6th, elected Dr. C. P. Fordyce, Falls City, president, Dr. C. E. Novak, Humboldt, vice president, and Dr. C. L. Hustead, Falls City, secretary-treasurer.

HUMAN INTEREST TALES

Dr. P. D. Kelly, has moved from Nemaha to Avoca, Nebraska.

Dr. and Mrs. C. H. Breuer, Lincoln, are travelling in Mexico.

Dr. P. J. Flynn, Plattsmouth, has been ill for the last three months.

Dr. J. W. Hellwig, Omaha, has started on a trip around the world.

Dr. W. S. Fast, superintendent of the Hastings State hospital, and Mrs. Fast, are on a trip to Honolulu.

Dr. B. Y. Bailey, Wauneta, has sold equipment to a Dr. Farr of Missouri and the latter has taken charge.

Dr. Robert T. Jones, Edgar, after returning from a period of study in Europe, has decided to locate in Kearney.

It is announced that Dr. T. J. Lawson, Long Pine, after sixteen years of practice in that community, has retired.

Dr. Hewitt Judd, formerly of the Hepperlin clinic, Beatrice, has gone to Vienna to study eye, ear, nose and throat work.

Another patient has suffered $35,000, or less, damage by an x-ray burn, and the Omaha courts are asked to adjudicate the matter.

Dr. Emma Ackerman, Sioux City, whose parental home is West Point, has been named a member of the staff of the new Methodist Hospital, Sioux City.

The Knights of Pythias of Nebraska have purchased the Columbus hospital (formerly the Evans hospital) and will establish an orphans' and old folks' home therein.

Dr. E. W. Rowe, Lincoln, was elected president of the Radiological Society of North America at the eleventh annual meeting at Cleveland, Ohio, December 7-11.

The Public Welfare department has refused to reissue a license to Dr. C. A. Flippin, (colored) Grand Island. His license had been revoked in 1924 after he pleaded guilty of attempting a criminal operation.

Dr. Dora M. Judkins-Davies, Tecumseh, has taken a position as a member of the staff of Hastings State Hospital. Some years ago Dr. Judkins was connected with the same institution in a similar capacity.

The State Bureau of Health reports that Miss Lila Belle Love, director for the past ten months of the laboratory, has resigned to attend Johns Hopkins University and that Mr. L. O. Vose, former director has again been appointed director of the laboratory.

It is announced that Mr. O. H. Gerry, president of the Gerry Optical Co., for several years advertisers in this journal, died recently. The policy and management of the Gerry Optical Co., is to continue as before, it being explained that because of illness Mr. Gerry had not been active for several years.

Friends of Dr. Newell Jones, erstwhile Omaha pediatrician, will be interested to know that he is now located in Hollywood, Calif., and is on the staff of the Children's Hospital. His address is 505 Hollywood Security Building. Dr. Delmer Davis and Dr. H. A. Waggoner, former Omahans, also office in the same building.

NECROLOGY

Thomas F. Britt, Lincoln, Nebr.; Bennett Medical College, Chicago, 1885; practitioner at Burwell and Lincoln, since 1888; died December 28, aged about 69 years.

Ernest L. Alexander, Omaha, Nebr.; Hahnemann Medical College, Chicago, 1882; practicing physician at Omaha for forty years; died of complications following the grippe, aged 67 years.

ANNUAL MEETING, OMAHA, MAY 11, 12, 13, 1926

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THE PRACTICAL MANAGEMENT OF SOME OF THE TYPES OF ACUTE INTESTINAL OBSTRUCTION*

J. E. Summers, M. D., Omaha, Nebraska

It would seem that the continued high death rate from acute intestinal obstruction was inexcusable. For many years the chief cause, delay in operating, has been cried-out against from the house-tops of the Medical World.

The general mortality in this country is above 50%, and only in a few hands has this mortality been appreciably lowered. The mortality of external strangulated hernia, the most common cause of acute intestinal obstruction, ranges from 33⅓% to 50%. Why this form of intestinal obstruction, usually easy to diagnose in its beginning, the safest of all forms of obstruction to operate upon, has such a high mortality, is due to one reason alone, delay. And while this delay is going on, too frequently taxis and other measures are resorted to, which unquestionably contribute to the high death rate. Medical treatment of any form of acute intestinal obstruction is more than reprehensible. As illustrative of this, I am familiar with the mortality statistics of several of the largest London hospitals, in one of which the mortality in cases of acute appendicitis and acute intestinal obstruction is much higher than in the others. This is accounted for by the fact that all acute abdominal cases in this hospital are first admitted to the care of the medical wards. In the other hospitals such cases go directly to the surgical side and are necessarily more promptly taken care of.

The familiar symptoms of acute intestinal obstruction should be recognized by any wide-awake physician. There is no excuse for overlooking an external, strangulated hernia. Acute internal intestinal obstruction has in the first six to eight hours few symptoms in common with those of the acute perforations of any hollow viscus nor with acute appendicitis, and should always be easily differentiated from both gall-stone and nephritic colics. In fact, except in the most unusual instance, the diagnosis of an acute intestinal obstruction should be made within the first ten hours of the seizure. The occurrence of an acute obstruction secondary to a chronic obstruction is not uncommon, and a careful history should nail the diagnosis.

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*Read before the Sioux Valley Medical Association, at Sioux City, Iowa, Jan. 20, 1926.

First, I want to present some lessons taken from a report published in April, 1925**, from the Ancon Hospital, Canal Zone. There were in all 150 cases of acute intestinal obstruction, twenty-two not operated upon; all of these twenty-two died. Of the 128 others operated upon, fifty-three died. There were fifty-nine cases of strangulated hernia, with nineteen deaths.

From the onset of symptoms, there were no deaths in thirteen cases operated upon within six hours; within twelve hours there were twenty-five cases operated upon with one death; within twenty-four hours there were thirty-nine cases operated upon with seven deaths, and within forty-eight hours there were fifty cases operated upon with nine deaths. From this time on, (forty-eight hours), the mortality rapidly increased.

A study of the types of operation done, with the results, points out a lesson long ago learned by surgeons, but for some unaccountable reason not appreciated, even today, and that is that except when the obstruction calls for the release of simple adhesions and bands as a primary procedure, no further operative work is usually justifiable. An intussusception, of course, is a positive and common exception. Likewise, exceptions would be an impacted gall-stone in the small intestine, or a volvulus, most commonly of the pelvic colon, occasionally of the small bowel. Primary resections, anastomoses of all types, have a high mortality and are seldom justifiable. Likewise, extensive exploration to determine the site of the obstruction is a very dangerous practice except in the very early periods of any type of acute intestinal obstruction.

An analysis of about 1900 cases of acute intestinal obstruction taken from the records (those of late years) of Saint Thomas' Hospital, London, and the Manchester Royal Infirmary, brings out several points of great interest and importance. Mr. Burgess, of Manchester, the surgeon who made the analysis, shows the high death rate from all forms of primary attempts at radical correction of the cause of the obstruction, and this is a world-wide experience. He shows that, excluding strangulated external hernia and intussusception, acute obstruction occurs twice as often in the large intestine as it does in the small intestine; that obstruction in the large intestine occurs six and one-half times more commonly on the left side than on the right side; that nearly 90% of acute obstructions occurring in the large intestine are due to malignant growths. Acute obstructions occurring in the small intestine do not usually have an antecedent history of intestinal disturbance, whereas the reverse is true of acute obstructions occurring in the large intestine.

My own opinion is that with rare exceptions it must be the unusual case that can with safety be radically operated upon during the height of the symptoms of an acute intestinal obstruction.

My experience agrees with that of Mr. Burgess' analysis, that in the vast majority of cases of acute intestinal obstruction the lesion is found in the large bowel and is due to malignancy, and is most commonly situated upon the left side. A study of the history, an examination of the abdomen by inspection and palpation, (a rectal examination should never be neglected), will in the not too-advanced case, reveal characteristic symptoms, as ballooning of the colon, more distension below than above the umbilicus, and if the patient is not too stout, the distended caecum may be made out. Some surgeons recommend in this instance doing a colostomy, especially when the site of the obstruction has been located in the lower sigmoid; others simply do a cecostomy, as it is now called, postponing until the patient's general condition warrants a possible radical procedure.

I would like to put on record an overlooked paper by myself, read in May, 1904, before the St. Joseph, Mo., Surgical Society, and published in June, 1904, in the Medical Herald. In this paper I recommended and practised, before the term "cecostomy" was coined, the making of a valvular fistula in the cecum, in the management of acute intestinal obstruction in the colon, the same as the Gibson fistula in the bladder, the technique is identical with that of the today en-

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**Boston Medical and Surgical Journal.

terostomy which has taken the place of the Maisonneuve operation. I had described the same technique in a paper read at the meeting of the American Medical Association in New Orleans two years before.

In the paper referred to, I recommended this form of enterostomy to be made above the obstruction in all types of acute intestinal obstruction coming under late observation.

An exploratory incision is justifiable in the early stages of an acute intestinal obstruction to determine the cause of the obstruction and to relieve it if the procedure is a simple one. A threatening gangrene may justify an exteriorization of the offending loop, or even a resection. When the latter is done an enterostomy proximal to the resection should always be made.

In our University hospital, still a young institution, we have operated upon forty-three cases of acute internal intestinal obstruction, with seven deaths, a mortality of 16¼ plus %; we have operated upon sixteen cases of acute strangulated hernia, with two deaths, a mortality of 12½%; a total of fifty-nine cases of acute intestinal obstruction with nine deaths, a mortality percentage of 15¼ plus %, an exceptional record and one which will be improved upon when physicians who first see these cases send them to the hospital earlier. The medical and surgical staff appreciate the importance of giving these cases prompt surgical relief. The practice which I have outlined above is in vogue in my service, and, in principle, in the services of my two colleagues.

The lumen of the colon is so large that other growths than cancer must very rarely cause an acute obstruction, except an occasional case of intussusception. I have successfully operated upon one such case in which a lipoma in the cecum dragged the cecum and lower ileum into the transverse colon.

In the small bowel where cancer is so rarely found, it may never fall to the lot of the surgeon to meet with an instance. I have operated upon two such cases in both of which the cancer was in the jejunum. All tumors of the small intestine, viz. lipomas and other simple tumors, because of the tendency to become pedunculated, are apt to produce an intussusception which may be for a time more or less chronic, but a carcinoma tends to act as does one in the colon, producing attacks of colic with, at times, visible peristalsis.

There is practically only one place in the duodenum in which an acute obstruction may occur, and that is very near the ligament of Treitz; a new growth of the constricting type, malignant in character, may occur in this situation. The stomach and duodenum, above and below the pylorus, take on an hourglass form, and it has been noted that the vomitus is very offensive because of the action of the pancreatic juice upon the stomach contents and the chyle (Bland-Sutton).

Cancer of the ileum is more common at the ileo-cecal junction. Wherever cancer may be situated in the small intestine it pathologically and clinically shows the features of a gradual constriction of the lumen of the bowel as does cancer in the colon.

At a very recent meeting of one of the most important surgical societies in the country, I was surprised at the rather hazy ideas given, as to when, where, and how to drain the intestine in cases of acute obstruction. In two papers, one read before the American Surgical Association in May, 1920, and another read before the American College of Surgeons' meeting in Montreal, I had explained and illustrated by reports of personal cases, what Victor Bonney, of London, the originator of the practice, meant when he recommended the doing of a jejunostomy in late cases of acute intestinal obstruction. Bonney's first paper appeared in 1910, and again another in 1916. It is the most general practice today to still follow the old dictum of Nelaton, "Open the first coil of distended intestine appearing in an incision made in the right inquinal region".

Two surgeons in this country, Hugh McKenna, Chicago, and A. I. MacKinnon, Lincoln, Nebr., realizing the value of a high opening and drainage of the distended small bowel as advocated by Bonney, in rather advanced cases of acute intestinal obstruction, had published papers reporting cases. McKenna's paper was published in December, 1913, and MacKinnon's in December, 1917.

My own papers, because of the prominence of the societies before which they were read, and the character of the journals in which they were published received wide publicity, and it was not until after their publication that the making of a jejunostomy began to appear in American medical literature as a practice for the relief of acute intestinal obstruction. The American medical profession, with the exceptions noted, had entirely overlooked Victor Bonney's life-saving recommendation, and too many today do not seem to understand the philosophy of its uses.

In general I think it may be said that in serious cases of acute intestinal obstruction, surgeons (1) make a primary enterostomy as a life-saving procedure to be followed later if necessary, by an abdominal section to find and relieve the cause of the obstruction. (2) They do a combined operation making an enterostomy opening in a coil of distended intestine after the successful removal of the cause of the obstruction; this being done for the purpose of securing a safe convalescence. (3) They have still further broadened the field and a peritonitis ileus is included in the indications for operation; the focus causing the peritonitis is removed (as a gangrenous appendix), and through the same incision a coil of distended intestine is opened and drained; the distended intestine is drained through a rubber tube fixed into it by a purse-string suture, and in all instances the first or most accessible coil of distended intestine is selected for this purpose, Nelaton's advice.

Nothing essentially different from what I have written can be found in our text-books or in the general practice of surgeons throughout the world, and without question the practice is sound. It is rightly claimed that the cause of the high mortality in acute intestinal obstruction (about 50%), is due to the fact that operation for one reason or another is performed too late. This is true, but even when performed late, I am of the opinion that the mortality can be greatly reduced if the principle of a properly performed and properly located enterostomy can be carried out.

Victor Bonney in 1910, published a paper advising that, instead of following out Nelaton's injunction, i. e., "to open the first coil of distended intestine for the enterostomy procedure", the jejunum be opened for this purpose. Bonney divides the obstructed intestine into three segments; the lower, middle, and upper; the lower more or less collapsed, the middle containing gas, the upper containing fluid.

The character of the vomitus indicates the height of the fluid-containing segment; when feculent, the stomach is the highest part. At first, in all types of obstruction, whether in the small or large intestine, the vomitus is simply the stomach contents; later, in all types, the vomitus becomes feculent and the stomach and jejunum are in "the segment of toxicity".

"This upward extension of the limits of the fluid-containing segment is due to a rapid upwardly extending infection of the canal by organisms of the lower intestine". (Bonney). The current in the intestinal tract has become reversed and the drainage must be established in the highest fluid-containing segment.

In Victor Bonney's paper published in 1916 he again recommends jejunostomy in intestinal obstruction when the character of the vomitus is intestinal or feculent, and says the drainage should be in "the segment of toxicity". The positive proof of the value of a jejunostomy in the circumstances is that the drainage of the jejunum causes an immediate cessation of the vomiting.

A relatively high left rectus incision, or one downwards from the tip of the eleventh rib, will expose the jejunum for drainage through a large-sized catheter introduced into it and fastened in position by a double purse-string suture. A. I. MacKinnon was the first to recommend the purse-string suture in this situation instead of the making of a fistula as practiced by Bonney and Hugh McKenna. The catheter comes away after a few days and the opening in the bowel and abdominal wall soon closes. Although I am a strong advocate of this procedure and have practiced it a number of times, I feel sure from personal experience that unless the vomitus is frankly feculent, the drainage tube should be introduced into the highest segment of the bowel that is distended, and not into the highest part of the jejunum if not distended, and this can be recognized if an abdominal section has been made to determine the cause of the obstruction. It can likewise be recognized through a proper incision for the exposure of the jejunum near its origin. If, in a search for the obstruction, the small bowel is found much distended, it can always be proved that the coils farthest away from the obstruction are heavy and contain much liquid; that those nearest the obstruction are light and contain mostly gas; the heavy coils should be opened in several places to evacuate their contents, and it is sometimes very wise to fasten the drainage catheter by an invaginating technique, into the highest opening made for relief of the distended gut; the other openings are, of course, sutured.

Local anesthesia, aided by gas if necessary, should be employed in making an enterostomy. In fact, any general anesthesia is dangerous in operating upon a patient suffering from an acute intestinal obstruction. The aspiration of vomitus, notwithstanding the stomach may have been washed out before the anesthesia, the added depression of the anesthesia itself, and the inevitable temporary paralytic ileus due to the anesthetic, favors retention and absorption of the poisonous intestinal contents, notwithstanding the cause of the obstruction may have been relieved or the bowel drained through the establishment of an enterostomy.

Although in a necessarily limited paper I have found it impracticable to discuss all of the different types of intestinal obstruction met with, and that have occurred in my own experience, yet I have tried to point out the principal pitfalls that tend to increase the mortality of this always dangerous lesion, which at times becomes calamitous because the sufferer has not been given the percentage rate of recovery to which our knowledge entitled him.

URGENT SURGERY OF THE ABDOMEN*

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Most of us have spent a good many hours at the bedside of the patient who says he had a sudden sharp pain in his abdomen, vomited, took a cathartic and then called us because he did not get relief by a bowel movement. This, in brief, is the usual history in what is commonly known as an "acute abdomen," if it is seen fairly early. Not every belly-ache with a slightly elevated pulse and temperature and more or less abdominal tenderness and rigidity is surgical as we all know. Too often these cases turn out to be pneumonia, kidney colics, or menstrual disturbances to warrant hasty operative procedures. But we know, too, that inflamed appendices do rupture, that peptic ulcers do perforate, that gall-bladders sometimes become gangrenous, or that bowels do twist or in some other manner become obstructed. Treatment of any one of the above named conditions, and they represent the majority of the urgent surgical conditions arising in the abdomen, is comparatively simple if seen early. Any one of them carries a high mortality if treatment is delayed.

Delay in treatment does not, of course, refer to minutes. It indicates hours. In a large experience in emergency surgery I can recall only one case in which I felt a minute lost meant a life lost and this was in a stab wound of the common carotid artery. In every case of urgent abdominal surgery adequate time can and should be taken to secure a good history.

The family, if not the patient, can give the history of previous abdominal disturbance commonly found in these cases. It is, indeed, fortunate for both the physician and the patient if there has been previous professional relationship. Long contact with sick people teaches the observant clinician that there exists great individual variation in susceptibility to pain. This applies as well to acute infections, food allergies, nervous shock and weather phenomena. Those of you who have practiced long in one community will agree that this variation is not only individualistic but also familial. Beyond all doubt, in acute abdominal conditions, an intimate knowledge of individual and family histories is worth far more from diagnostic and prognostic viewpoints than a white blood count or other laboratory procedures that may be mentioned.

One other general observation should be made. It is appreciated by all that the advances made in laboratory diagnostic measures avail one little in the handling of acute abdominal conditions. To submit a patient with acute abdominal symptoms to a gastrointestinal x-ray is unthinkable. Yet, I have operated on children for intussusception who had just been given an opaque meal. I have seen malignant partial colonic obstruction made complete and urgent by the same procedure. A good many inflamed appendices have burst while a doctor was waiting for the leucocytes to rise and announce to him that surgery was indicated. A urinary examination can always be made, of course, for no careful surgeon will enter the abdomen until the bladder has been emptied. The old diagnostic triad, pulse, temperature and respiration, combined with the most important of all, palpation, are to be relied upon more than all diagnostic refinements and, finally, clinical judgment is a safer guide than any group of laboratory measures.

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*Read before the Eighth Councilor District and Holt County Medical Societies, O'Neill, Nebr., October 22, 1922.

TRAUMATIC INJURIES TO THE ABDOMEN

Traumatic injuries to the abdomen will be first considered. These must be divided into those that penetrate the abdominal wall and those that do not. It is surprising what slight traumata sometimes give rise to grave symptoms. I saw a boy of eight a few years ago who fell off the rear end of a moving truck. There was not a mark upon his skin yet he presented all the symptoms of grave abdominal injury with an extremely rigid abdomen, nausea, a rapid rising pulse, cold clammy skin and extreme shock. The urine was negative. I waited six hours and treated him for shock. He did not improve and I opened the abdomen expecting to find a ruptured viscus and intra-abdominal hemorrhage. He had a large subcapsular hemorrhage in the region of the right kidney and an extensive retro-peritoneal hemorrhage. He recovered without incident. Since that I have seen another similar case and the abdomen was not opened. I have opened some abdomens showing all the signs of an abdominal catastrophy following injury in which I found nothing except a uniformly spastic small bowel. These cases are, I think, due to profound sympathetic vaso motor disturbance. They should not, of course, be surgicalized but it is safer to err in that direction than in the other. I will confess I am less inclined to operate in these cases than previously.

That the reverse occurs, that is, little or no injury to the viscera in the presence of severe abdominal trauma, we all know. One formerly saw these cases often among farmers who were kicked in the abdomen by horses or mules. About six months ago I saw a boy of seven years whose abdomen was traversed by the wheel of a motor car. The marks indicated it passed over the upper abdomen just below the costal margins. He was badly shocked for four or five hours but recovered uneventfully. Had the accident happened just after his evening meal instead of just before it, as it did, I believe the story would have been different. With accumulating experience I have been less disposed to open the abdomens of children in great haste. They are shocked easily but recuperate quickly—circumstances which make the initial picture somewhat deceptive.

Gunshot and stab wounds of the abdomen all demand exploration. The course that bullets take is often most unconventional and the damage they do or fail to do is beyond all comprehension. An Italian of twenty-eight years was admitted to the hospital with a gunshot wound, the entry being over his right anterior superior spine and the exit exactly in the same region on the left side. The abdomen was rigid. I explored the tract before I opened his abdomen. The bullet had grazed the parietal surface of the parietal peritoneum but did not enter the abdomen. A woman of thirty-six years was shot from behind just above the left posterior superior spine. X-ray showed the bullet in the left labia majora. The abdomen was explored but no damage had been done. She recovered uneventfully. A man of forty-three showed a wound of entry in the suprapubic region. There was no wound of exit. I was surprised when I found that the urine was not bloody. Laparotomy showed a perforation of the anterior and posterior walls of his stomach but no damage to the bladder. A case with wounds of entry and exit in the right flank—three inches from each other—showed four small gut perforations. A boy of four years fell on a pen knife, the wound being in the right axillary line between the costal margin and the iliac crest and permitting the escape of about six inches of omentum. Laparotomy showed no other injury.

Obviously in every case of acute trauma to the abdomen the urine should be obtained for examination and if it cannot be voided the patient should be catheterized. A small amount of blood in the urine is not in itself, however, sufficient cause for laparotomy. I have seen a few cases with a temporary hematuria in which recovery occurred without operation.

I have seen only two perforations of the bladder. One was caused by a steel catheter. The man was moribund when seen and was not operated upon. The other was sutured and a permanent catheter inserted.

I make it a rule to open the abdomen in all cases of gunshot wounds of the chest unless a wound of exit shows plainly that there was no possibility of the bullet entering the abdomen. Unless the patient is extremely shocked I have always operated at once. A systematic plan of exploring the abdomen is carried out. An Allis forceps is placed on any given portion of the small bowel and the whole gut is read from end to end. Resections are avoided if possible. Usually suture of the perforation is sufficient. All of the viscerae are examined. Wounds of the liver are not molested. Attempts to stop oozing from this organ are worse than useless. The same is true of the spleen. I drain the incision with cigarette drains and also through a stab wound in the groin. I have seen gunshot wounds of the abdomen in which no severe injury was found but in which there was massive hemorrhage from the retro-peritoneal vessels and the abdomen filled with blood. Very often the hemorrhage starts anew after the abdomen is opened and becomes uncontrollable. I have felt in these cases that a better chance of recovery would have existed if no operation had been performed, but there is, of course, no way of knowing this beforehand.

NON-TRAUMATIC SURGICAL ABDOMENS

The non-traumatic urgent surgery of the abdomen demands, I believe, more care in diagnosis and accurate judgment in treatment than the traumatic. The appendix is, of course, the most common source of surgical pathology in the abdomen. It may, in the words of a mature surgeon, to whom I was for many years an assistant, "be taken against the field." The history varies little in these cases — that of pain, nausea, fever, generalized abdominal tenderness, finally localizing in the right lower quadrant. This sequence, I believe, helps in differentiating from certain gastro-enteric upsets of medical character. I hesitate to accuse the appendix of fault if the patient says that he was first nauseated and then felt pain. I believe, too, that a painful belly accompanied by a diarrhea, is rarely due to an inflamed appendix. Formerly I relied a good deal upon this point, though in the last three or four months I have seen several badly inflamed appendices in people who gave a history of dietary indiscretion followed by a diarrhea. One of these was in a man of seventy-five years whose appendix ruptured within twelve hours of the onset. The high appendix sometimes confuses one and it is not easy to differentiate it from gall-bladder disease. I have found inability to breathe deeply and the diaphragmatic fixation of gall-bladder disease helpful. The low appendix brings in a consideration of the pelvis in the female. Extremely difficult of differentiation is the appendix which lies over the ureter or with its tip at the bladder fundus. With it one will get blood in the urine, urinary frequency and pain referred to the genitals or down the thigh, a typical picture of renal or ureteral colic. One evening I felt such a picture warranted delay until a ureteral catheterization could be done the next morning. Fortunately, a better judgment prevailed when morning came and appendectomy rather than the cystoscopy was done, revealing a very badly inflamed appendix. It seems to me the proper course to pursue in such cases is clear — if reasonable doubt exists do not allow the appendix to burst while establishing the niceties of a diagnostic problem.

One is often hard put in differentiating between pneumonia and appendicitis in children and the problem is a worrisome one because of the rapidity with which suppuration or gangrene often develop in children. Purgation, which children nearly always receive, means perforation. The initial chill in pneumonia is often missing in children. I believe a white blood count is of considerable value in these cases and it early shows a very marked leucocytosis with a large poly percentage. The fever also is usually higher than in appendicitis.

It has been a long time since I have drained an abdomen without removing the offending appendix. However, the abdominal surgeon who makes rules from which he never deviates is dangerous. Most certainly I would never hazard a patient's life to present his relatives with a surgical trophy.

It is not often that gall-bladder surgery is emergent. If the gall sac perforates it usually shows less haste about it than does the appendix and the anatomic surroundings are excellent for protection. The parietal peritoneum, the under surface of the liver, the transverse colon and the omentum all help to localize contaminating material. It is to be remembered also that the orthodox lay treatment for all bellyaches, a dose of epsom salts or castor oil, is less apt to unfavorably effect the inflamed gall-bladder than appendix. Undeniably the very virulent gall-bladder infections ushered in with a chill and high fever and with an onset very much like the fulminant appendix often result in early gangrene or perforation. They are usually metastatic from a grippe or influenza infection. The acutely inflamed and thickened gall-bladder, seen in the operating room, rarely showing a tendency to leakage, gives the surgeon assurance and comfort when he has once definitely decided the gall-bladder is at fault. So it may be assumed that nearly always gall-bladder infections warrant symptomatic treatment. Even the empyemic or perforated gall-bladder needs little surgery. All one needs to do is drain the area. This can be carried out under local anesthesia. Gall-stone colics are of little concern so far as danger to life is concerned. There is no good reason for operating in an attack.

Intestinal perforations usually of duodenal or gastric ulcer are grave abdominal emergencies. They are usually rather easily diagnosed. An antecedent history is valuable though it is important to remember that perforations may occur without history of previous gastric disturbance and in many cases the patient is too sick to give a reliable history. The sudden onset of terrific unabating pain in the right upper quadrant which fixes the patient immobile is characteristic, and is quite the reverse of the gall-stone colic in which the sufferer tosses about clamoring for relief. I shall never forget the first perforation I ever saw. The man was a peddler taken ill while at work. He sat on his high wagon seat shouting for aid but defying all efforts to remove him. The pulse is usually not much accelerated and there is usually no vomiting and the temperature is apt to be subnormal. The abdomen is like a board and the impression is gained that something appalling has occurred in that cavity. Any one who has once observed the picture of a perforated ulcer will never forget it.

I nearly always content myself with closing the perforation and draining the abdomen through the incision and through a stab wound in the groin. Very good surgeons sometimes perform gastroenterostomy at the same time. In one case of perforated gastric ulcer with pyloric stenosis I did an anastomosis with a Murphy button. The man made a good operative recovery and passed the button before he left the hospital. He has continued to suffer greatly from digestive trouble, however, I do not believe that the old dictum, a perforated ulcer is a cured ulcer, holds good in any large percentage of cases. Those cases I have seen have usually perforated after a full meal. In such cases I do not wash out or flood the abdomen as is sometimes recommended. I merely mop out the material accessible and drain freely.

Acute pancreatitis is ushered in by agonizing pain in the epigastrium referred to the back. Sometimes at the very beginning there is profound shock, rapid pulse, cold leaking skin, ashen color, sub-normal temperature and persistent vomiting. One feels at once that a catastrophy has occurred. I know of nothing giving such unabating pain, not relieved by morphine, unless it be mesenteric thrombosis. Little is to be gained in waiting for reaction in these cases. Drainage of the abdomen, sometimes of the gall-bladder and sometimes puncture of the gland is indicated. The mortality is very high. I believe chronic gall-bladder cases sometimes develop a mild acute pancreatitis from which recovery takes place without operation.

Intussusception is fairly common in children. In my experience the onset has usually been acute in a previously healthy child. There are periods of rest between the painful spasms. The child soon appears quite sick. I have not always been able to make out the abdominal tumor until the child was under anesthesia. The last case I saw, the tumor was plainly palpable in the rectum, though the child resisted abdominal examination to such an extent that nothing could be felt. Operation was done within four hours after onset and even then the bowel was doubtfully viable. Reduction of the intussusception and resection, if necessary, are indicated. If doubt exists a loop of bowel can be brought up to the abdominal wall and left as was done in the above case. I believe the various operations devised to prevent recurrence of the condition are poorly conceived and worthless.

The mortality from acute intestinal obstruction has remained at about 45% for several years. Obviously this could be greatly reduced by early operation. However, as long as "locked bowels", as the condition is commonly called, is treated by patent pills, vertebral adjustments and by those who maintain that it represents only error and fantasy, there probably will not be very much revision downward of the mortality tables.

The picture varies greatly, depending, of course, on the location of the obstruction. In general, the following is found. There is acute intermittent pain, nausea, followed by vomiting, visible peristalsis, abdominal tenderness and inability to pass gas. Gradually there develops fecal vomiting, intense thirst, enormous distension, a rapid weak pulse, subnormal temperature and profound shock. The high obstructions are, of course, more serious. They are very much more painful, the pulse rises more rapidly, there soon develops an anuria and the distention is apt not to be so great. Too often the diagnosis of intestinal obstruction is not made until the vomiting is fecal and likewise is too often withheld as long as any gas is passed. Either practice is equally reprehensible. In a real high obstruction the vomitus may never be fecal. Likewise in a high obstruction gas may be passed for several hours or a few days emptying the bowel below the obstruction, leading the medical attendant to believe the obstruction is not complete. Aside from viewing the abdomen for scars and examining the external hernial orifices I have never made it a practice to concern myself greatly as to the cause or exact location of the obstruction. It may be any place from the duodeno-jejunal flexure to the sigmoid flexure and the causes are so many as to almost defy enumeration. I have always felt it was puerile to attempt to locate the obstruction by palpation or auscultation of the abdomen. I remember a case of strangulation of the gut in a femoral hernia in which no external evidence of the hernia was apparent, only a small knuckle of bowel being caught. Another case was seen in which a Meckel's deverticulum had rotated and strangulated, giving a mass in the right lower quadrant taken for a new growth. A third case was seen in which an acute obstruction developed on an annular carcinoma of the sigmoid, there being entire absence of previous bowel disturbance.

Prolonged search for the site of obstruction or extensive operative procedures such as bowel infection are apt to result fatally. Relief of the distension and drainage of the gut rather than the relief of the obstruction is all that can be undertaken safely, in many cases. This can be done quickly and easily by a jejunostomy through a left sub-costal incision under local anesthesia.

A most interesting condition I have encountered two or three times is that described as abdominal migraine. It simulates very closely acute surgical lesions of the abdomen. The attacks come on suddenly with severe intermittent pain, vomiting of bile and mucus, abdominal tenderness and constipation. I recall a girl I saw in one of the clinics in Vienna two or three years ago. She had been laparotomized eight times for an acute intestinal obstruction and the ninth laparotomy was done at the time I saw her. Nothing was found but a rigidly contracted small gut. The second was that of an interne who during his eighteen months service had three or four violent attacks of pain and nausea lasting two or three days with absolute constipation. His abdomen had never been opened. He had passed through several of these spells and was convinced that the condition was not surgical and had never submitted to the repeatedly advised exploration. I do not believe the pathogenesis of this condition is clearly understood. Most of these patients either have a true migraine or a family history of migraine. I believe it is a disturbance of the sympathetic nervous system of some type. Most certainly the condition has the appearance of acute intestinal obstruction. I believe there are two points of differentiation, however. Despite the obstipation distention does not develop and while there is tenderness and rigidity neither is of the character found in true surgical abdomens. The tenderness usually lessens on firm and continued pressure and the rigidity is apt to soften. I believe these points are often valuable in differentiating from the painful, tender and rigid bellies demanding surgical treatment.

Time does not permit a consideration of the surgical emergencies arising out of the female pelvis.

No doubt the memory of some of you goes back to the time when peritonitis was treated with opium, hot stupes and enemas (or clysters, as they were called), and when the abdomen was never opened except in the post mortem room. That great cavity now holds few secrets. There is hardly a crevice in it that is not accessible to the surgeon. The ease and comparative safety with which the abdomen can be explored does not warrant hasty or ill advised laparotomy. It does, however, in the conditions we have been considering, offer the only hope of recovery and our obligation to recommend it is plain.

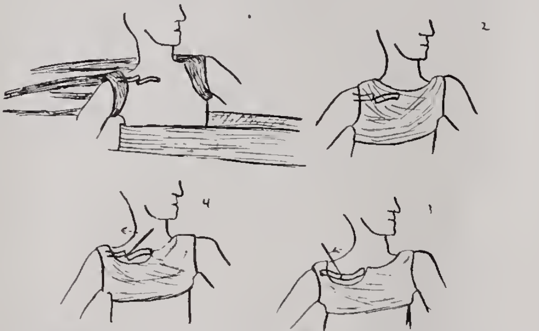
TREATMENT OF INTRACRANIAL HEMORRHAGE IN THE NEW-BORN

Clifford G. Grulee, Chicago (Journal A. M. A., Aug. 1, 1925), feels that in the present state of our knowledge the best treatment for intracranial hemorrhage is absolute quiet and rest; that the measures up to the present time adopted for the relief of the condition are satisfactory neither from the theoretical nor from the practical standpoint; that the damage is done before the measures can be of value, and that, as a consequence, until a diagnosis is made much earlier than seems at present possible, the best plan to be followed is to see that nothing is done to disturb the quiet of the infant.

LEVERAGE AND LEVERS IN THE REDUCTION OF FRACTURES*

J. E. M. Thomson, M. D., F. A. C. S., Lincoln, Nebr.

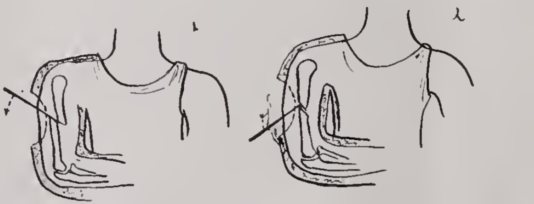
The use of the principle of leverage and levers in the reduction of fractures and dislocations is perhaps as old as the art of treating fractures. The application of this principle, however, has varied in the hands of different operators. Dr. Hugh Owen Thomas, famous Liverpool Surgeon, in his "Contributions to Medicine and Surgery" published some fifty years ago, describes the technique of direct leverage as we have used it with the exception that in many instances in order to retain position of the fragments the lever must be held intact between the fragments for a period of time after reduction and so fixed in plaster-of-Paris cast that the position of the bone fragments will not change.



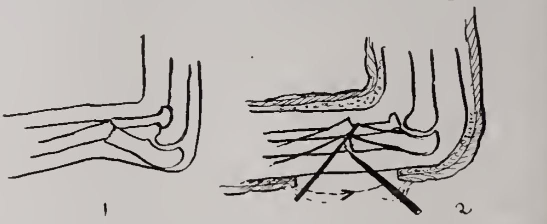
No. 1. Fracture of the clavicle which was placed in figure of eight plaster cast over the shoulders by the author's method. Apposition of fragments was not satisfactory. By cutting out the cast over the clavicle a lever was used to accomplish reduction and was removed immediately after giving satisfactory alignment.

Dr. Thomas states that he has used this technique for many years in the reduction of compound fractures.

During the past six and one-half years we have used this technique for the successful reduction of fractures of the radius and ulna, one or both bones; fracture of the humerus, clavicle, femur, tibia and fibula. In our series of thirty-two cases we have not had a single infection, non-union or accident of any kind that would jeopardize the function of the part involved. It is true as you may realize from the small number of cases in this series, covering several years experience that we use this method only when fixed traction or manual reduction has failed to bring about the desired approximation of the fragments.



No. 2. An oblique fracture of the humerus which would not assume satisfactory position. A lever thru a hole in the cast between the fragments gave a satisfactory result.

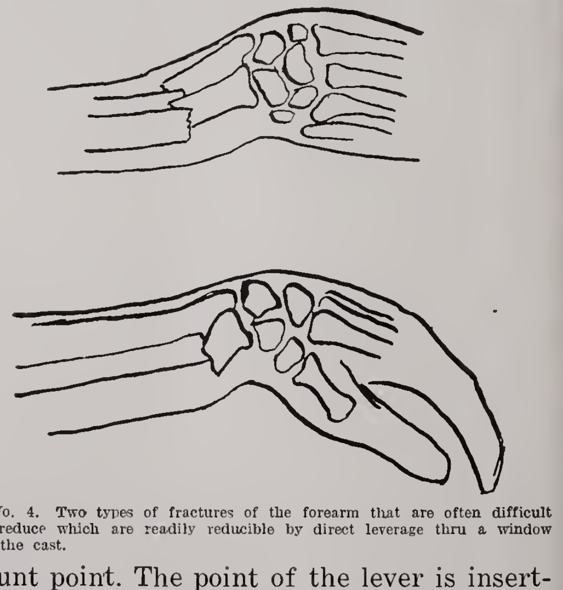


No. 3. A fracture of the upper third of the ulna with dislocation of the head of the radius, which on reduction of the radius did not line up properly, but by direct leverage thru a window in the cast was reduced.

The method of application has been fully published by me in the Journal of Surgery, Gynecology and Obstetrics of September, 1924.

In fracture of the forearm in the middle third, for example, the arm is thoroughly cleansed, operator must observe rigid aseptic technique, the anesthetized patient is placed on the x-ray table with the extremity under the fluoroscope. Before dimming the light a small stab wound is made over the fractured fragments at the most convenient position for the application of the lever.

We use as a lever a one-fourth inch round steel eight or ten inches long with tapered blunt point. The point of the lever is inserted in this small wound. With the lever inserted into the wound, an assistant, by grasping the hand of the patient makes traction



No. 4. Two types of fractures of the forearm that are often difficult to reduce which are readily reducible by direct leverage thru a window in the cast.

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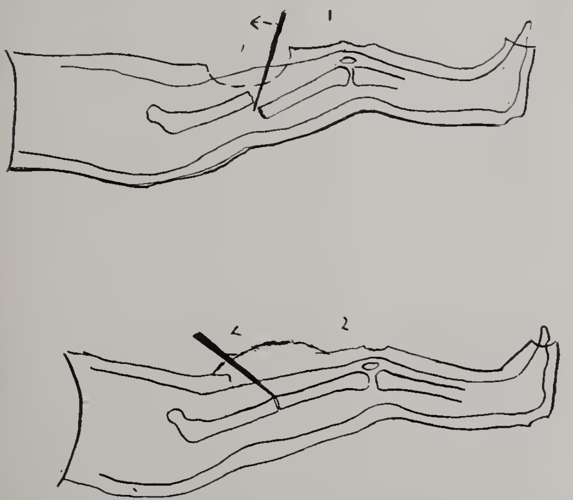
*Read before the annual meeting, Nebraska State Medical Association, Lincoln, Nebr., May 12-14, 1925.

on the extremity. Lights are dimmed and, guided by the use of the fluoroscope screen, we pass the lever between the ends of the fragments in the same plane with the overriding displacement, the end of the lever being inserted to the medullary portion of the under fragment. Then the lever is brought through an arc towards the upper fragment, making a pressure forward and downward against the upper fragment. The operator's free hand aids in perfecting the alignment and apposition.

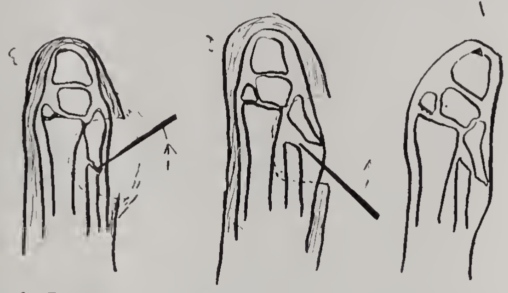
Sterile dressings are placed about the lever and saturated with alcohol. Sterile sheet wadding bandages are applied to the extremity and the plaster of Paris cast over this, anchoring the lever in the position which maintains apposition of the fractured fragments. The cast should extend from the upper third of the arm to the base of the fingers, the forearm flexed to an angle of 90 degress with the forearm in supination, the hand in dorsiflexion. When the cast is hard the end of the lever can be sawed off so that the patient will not bump the lever and cause a displacement of the fragments.

After a week or ten days a small opening in the cast around the lever is cut and the lever pulled out. By this time callus has begun to form and approximation is relatively assured. When both bones are overriding, two levers may be used and both of them embedded in the cast.



No. 5. The illustration shows a fractured femur in a plaster of paris spica cast in which full length has been attained, but with apposition of the fragments is poor. By a lever inserted between the ends of the bone thru a hole in the cast the proper alignment is accomplished. The lever is left in place ten days.

When it is impossible to use the fluoroscope in applying this technique, as in fractures of the leg and thigh where fixed traction must be maintained on the fracture table, it is best first to obtain full length of the limb by means of traction and then make a small incision just large enough to permit the insertion of the lever and the index finger to the fracture fragments. With the finger as a guide, the lever is forced between the ends of the fragments and leverage applied as previously described. A few stitches are needed to close the wound. The lever is embedded in the plaster cast as before.



No. 6. Fracture of the lower end of the fibula when oblique is often difficult to approximate when complicated by fracture of the internal condyle and severe ankle injury. A lever was inserted between the fragments and brought proper alignment.

In many cases it is very essential to obtain full length and place the arm or lower extremity in a plaster-of-Paris cast in as near proper position as possible and then perform the operation by one of the two previously described techniques through a window in the cast. I have found that by this method it is much easier to maintain the position of the fragments after reduction is accomplished and that it is less often necessary to leave the lever in position between the corrected fragments. This point has not been brought out in my previous reports of this technique and I believe it is a feature that will bring success more readily than the previously discussed methods.

In conclusion, first, let me remind you again that so far in the use of this method for the reduction of fractures we have had no complications and our results have been uniformly most pleasing. Second, many fractures which appear irreducible without extensive open operation can by this method be reduced with the minimum amount of damage to the soft tissue. Third, the embedding of the lever in the plaster cast after reduction in these cases in which the fragments will not remain in apposition without, the lever insures adequate fixation of the fractured fragments. Fourth, the point has been raised by some that the placing of an instrument of this character blindly into soft tissue was a dangerous procedure; on the other hand it appears from my experience no more dangerous than the insertion of a sharp pointed hypodermic needle as used by many for local anasthesia, as the lever is not a sharp pointed end and will push aside without damage important soft strucures. The procedure is far less dangerous than the usual osteotomy of the femur for the correction of knock knees as in that instance a sharp bladed chisel is used to perform this operation in a more nearly blind manner than a lever guided by flouroscope or the operator's finger.

Fourth: the lever is removed after a week or ten days which causes no pain or discomfort to the patient.

DISCUSSION

J. P. LORD, M. D., (Omaha): Mr. Chairman and Fellows: I listened to this with a great deal of interest. The doctor has given his experience and the experience of those who announced this principle before him. I have used this, in not so elaborate a form, myself. We have all used this principle of leverage in many of our bone cases, or in the cases requiring operation where a spasm has developed and contraction of the structures, that rendered leverage necessary.

Leverage is necessary in the reduction of fractures. I dare say the doctor has found in transverse fractures if you can utilize your leverage or get a reduction, the battle is chiefly won.

I was interested to hear him speak about leaving his instrument in some cases that were stabilized. I think his ingenious method of the application of plaster so as to control the limb entirely and control the lever asbolutely, minimizes the danger of having so relatively unstable a fixation give away at times.

Has it ever done so? Has it become disturbed or given considerable annoyance in a considerable number of cases?

DR. THOMSON, (replying): Sometimes I have cut the lever off where it is liable to be shoved or pushed.

DR. LORD, (continuing): I would think there might be a little difficulty incident to this procedure, if perchance the team work incident to the use of the fluoroscope and plaster and lack of complete control of asepsis in this operation were not perfect, so that it might be quite as dangerous as a deliberately open operation. I think it would be well to bear that in mind.

The results the doctor has obtained speak well for the method. I would say we should bear this in mind: Use it on occasion. For twenty-five years, in some stubborn, intractable cases I have made use of a particularly strong drill. I had one that was partially without temper so that I was not likely to break it off. If they are transverse, the majority of them will stay fixed.

I think it is very clever and adds another means that the resourceful man may use in controlling otherwise uncontrollable fractures.

The doctor has shown chiefly transverse fractures, which are not as a rule very troublesome. This also requires a man of an orthopedic mind to use it. I am a little on that order. I recall a fracture handled between the Christian Scientists and some others for a month—a transverse fracture of the femur in a girl of fourteen. I thought, "A fellow should succeed without an open operation if he has patience enough." Not until I had turned this fracture nearly to right angles, and after I had tried six times—checking it with the x-ray—did I succeed in getting a proper fixation that would stay in place; but I got off without a classical surgical operation.

I will digress to say that we who take a good many leftovers have a great many cases of lameness from open operations on fractures of the femur that should be avoided, if possible.

A. P. FURGASON, M. D., (Lincoln): Does he have any trouble with a plaster cast applied to a fracture where there is liability to be swelling?

DR. THOMSON, (closing): In the series of cases I have had, I have had no infections. There is, as you know, always when an instrument of that character has been left in the soft tissues for some time, that danger. The period for leaving this varies from a week to ten days. Usually a sufficient callous has formed in that time to maintain the fragments. The soft tissues have assumed their new position, and there is very little danger, if properly immobilized, of losing the position of the fragments.

There are certain cases where we have to cut. We cut in a different angle from that in which the lever is applied. It is left in place not over ten days.

MODERN ASPECTS OF NUTRITION: THE PATHOLOGY OF MALNUTRITION

12. Acid-Base Equilibrium with Reference to Pediatrics—Part II, Concluded.

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INTRODUCTION

We shall now take up the various milk formulas making use of the principle involving the buffer effect of cow's milk. We have already discussed at full length the differences between cow's milk and woman's milk. One of the many important points that concerns the pediatrician lies in the fact that cow's milk is richer in buffer substances than woman's milk. The initial acidity of fresh cow's milk is represented by a hydrogen ion concentration ranging from pH 6.8 to pH 6.5, while fresh mother's milk is less acid, having a pH of 7.6 to 7.1. Nevertheless, cow's milk can neutralize more acid than woman's milk. This neutralization of added acid is the work of the buffers in the milk, the proteins and the phosphates. In cow's milk the chief buffers are phosphates and calcium caseinate, one-third of the buffer substances being located in the whey, and two-thirds in the curds.

Clark(1) was one of the first to show that cow's milk contains more buffers than woman's milk, and that very considerable amounts of acid may be added to cow's milk without causing a great change in the hydrogen ion concentration. Marriott and L. T. Davidson(2) demonstrated that the addition of 30 c.c. of decinormal hydrochloric acid to 100 c. c. of cow's milk results in a comparatively slight change in the hydrogen ion concentration (from pH 6.6 to pH 5.85), while the same quantity of acid added to human milk changed the hydrogen ion concentration to a much greater degree (from pH 6.9 to pH 3.4). To bring cow's milk to the same degree of acidity would require over 100 c. c. of acid or approximately three times as much as in the case of breast milk.

The range of hydrogen ion concentration in gastric digestion in the normal breastfed infant may be safely put as pH 3.75. The peptic enzyme concerned in protein hydrolysis does not begin to split its substrate until pH 4.0 is reached and does not arrive at its optimum acidity until the medium in which it works has a pH of 2.0. From the facts given it is very evident that it would require three times as much gastric juice to bring cow's milk within the range of peptic digestion as it does breast milk. Such large amounts of gastric juice necessary to secure with cow's milk the utmost gastric efficiency is out of the question when we realize that gastric digestion in infancy is restricted because of the limitation in the amount of gastric juice secreted and, therefore, in the amount of acid secreted.

When cow's milk is fed to an infant, a great part of the gastric acid unites with the buffers present in the milk. The quantity of free hydrochloric acid left is too slight or the hydrogen ions too small in concentration to carry on in the most efficient manner the work of digesting protein. It is also too small to maintain properly the other important functions devolving upon the presence of free acid in the gastric contents. These important factors we have discussed with great detail in a previous paper. The addition of acid to cow's milk before ingestion decreases its buffer effect so that the acid of the gastric secretion finds no substance or a limited amount of substance to react or unite with. The result is that the acid secreted by the gastric cells is free to exert its action in producing a condition optimum for gastro-intestinal activity. In the light of what we have said we feel that the future procedures in infant feeding will emphasize two factors, the gastric acidity of infants and the buffer value of their food.

ACID MILKS HAVE BEEN KNOWN FOR YEARS

Acid milks have been in use for a very long time. They have been a staple article of diet in many countries for many years(3). Yogurt is a Bulgarian product. The souring of the milk is caused by bacillus bulgaricus. The longevity of the natives, who, to a large degree, subsist on this fermented milk, has become proverbial. Cultures of this bacillus in tablet and liquid form, as well as other organisms, like acidophilus, are easily obtained on the American market. Other acid products, similar to yogurt, are leben of Egypt, cioddu of Sicily, (cieddu of Sardinia), dadhi of India, and tatte of Scandinavia.

Besides these lactic acid milks, there are other forms of acid milks containing some alcohol. Kumiss is prepared in central Asia and the steppes of Russia by the action of yeasts and bacteria on the milk of the camel, mare or ass. In this country kumiss, as a therapeutical food, is prepared from cow's milk. The alcohol is generated from yeast acting on added glucose or sucrose. Besides alcohol, lactic acid is produced, the proteins are more or less peptonized, butyric acid is liberated, and esters are formed. Van Slyke analyzed kumiss made of cow's milk and found therein an alcohol content of 1 per cent. An alcohol-acid milk similar to kumiss is kefir, prepared in the Caucasus from sheep's, goat's or cow's milk, and mazun made in Armenia, from goat's, sheep's or buffalo's milk.

Acid milk for infant feeding has also been known for a long time, but it is only in the very last few years that feeding of acidified milks has received the attention it well merits. Teixeria de Mattos(4) states that buttermilk has long been employed in Holland for feeding babies as well as calves, pigs and chickens. Campert(5), in an article written in 1770, discussed the use of acid milk in infant feeding. Ballot(6), in 1865, again advocated its use, and de Mattos, in 1902, reported a series of infants successfully nourished on buttermilk. In the next ten years very few articles appeared both in this country and in Europe. Numerous articles, however, did appear on eiweissmilch or protein milk. Although protein milk is buttermilk to which protein is added, no one seemed to consider of importance the amount of organic acid or specifically the amount of lactic acid present.

In America the use of acidified milks first gained strong impetus in the city of St. Louis. In 1912 Bradley(7) of that city recommended lactic acid milk as a routine institutional diet for sick as well as for healthy infants. It is to Marriott, however, that we owe the contribution to pediatrics of acidified foods. To test out the biologic efficiency of acid milk, Marriott(8) fed more than half the infants in the Washington University Dispensary lactic acid milk. He proved by this experiment that acid milk gave better results than any other type of artificial feeding. Acid milk is gaining rapid ground as a feeding procedure, and we may state that at present some form of acid milk is used more or less in the feeding wards of practically all children's hospitals.

It is very interesting to realize that our views with reference to the reaction of milk used in infant feeding has been put in the last few years on a rational basis. It is not very long ago that alkali in the form of lime water was strongly recommended and popularly employed in the firm belief that it was necessary to change the reaction of cow's milk, which is slightly acid, to compare with breast milk which is less acid or more alkaline. The use of alkali has been shown to be fallacious from many physiological angles. With alkali we retard or prevent the coagulation of milk by rennin. By reducing the acidity of the stomach we interfere with peptic digestion, with gastric and intestinal motility, with the bactericidal power of untampered gastric juice, with the secretion of pancreatic juice and bile, and, last but not least, with the normal regulation of acid-base balance. In this connection it may be stated that Sato(9) has proven experimentally that alkali unfavorably affects the retention of calcium.

HYDROCHLORIC ACID MILK IN INFANT FEEDING

For practical purposes of infant feeding, the acids recommended are hydrochloric, lactic, acetic and citric. Faber(10) introduced the practice of adding hydrochloric acid to cow's milk. His choice fell upon this acid because of its physiological presence and because of its suitability for enzyme action. His complete formula calls for 960 c. c. of whole milk, 240 c. c. of decinormal hydrochloric acid, and 60 c. c. of karo corn syrup. By using the acid in the proportion given (25 c. c. of acid to 100 c. c. of milk), he reduced the buffer value of cow's milk to a point approaching that of woman's milk. The pH of Faber's mixture is 6.0, in contrast to that of cow's milk, which is about 6.6.

The disadvantages incident upon the use of milk treated with hydrochloric far outweigh the advantages. This milk mixture is not considered suitable to infants under six weeks of age. The taste is very sour, and some infants may refuse to take it on that account. The acid may bring about a heavy precipitation of flocculent casein. The acidity of the milk is not great enough to prevent bacterial action. It is not, however, feasible to increase the acid content, since the use of hydrochloric acid involves the danger of acidosis. Unlike the organic acids, hydrochloric acid is not oxidized, but it serves to reduce the alkali reserve of the body. Marriott(8) has pointed out the fact that hydrochloric acid milk may overtax the acid regulating mechanism of the body. Scheer(11) has observed excessive excretion of phosphate and acid in the urine of infants on hydrochloric acid milk. Flood(12) has very recently studied the effect on the acid-base balance, and has reported that milk acidified with hydrochloric acid brought about a larger urinary output and a marked increase in the total acidity of the urine as measured in terms of titratable acidity and of ammonia eliminated. In view of the disadvantages enumerated, the use of hydrochloric acid as an acidifier of cow's milk has not received wide approval.

LACTIC ACID MILK IN INFANT FEEDING

Far more popular than hydrochloric acid milk is lactic acid milk. This organic acid may be produced in milk by the action of certain bacilli on the lactose of the milk. Bacterializing milk is a time-consuming process, since twenty-four hours must elapse for incubation and completion of the biochemical reactions. It must also be said that the acidity of such milk cultures cannot be controlled, due to varying factors, such as the type of bacterial strain, possible contamination with other organisms, the time of incubation, and the time of keeping. On account of the uncertainty of the bacterialized product, the addition of lactic acid itself has been preferred to the employment of any organism producing this acid. Marriott prepared lactic acid milk by boiling a pint (500 c. c.) of whole cow's milk for 5 minutes, allowing to cool and adding 4 c. c. of lactic acid U. S. P. (75 to 85%). The mixture is stirred slowly, about six times for each drop of acid. The time consumed in mixing with the acid is about 20 minutes. Karo corn syrup diluted with an equal volume of water is now added to the extent of 30 c. c. (1 oz.). The caloric value of this milk is 18 calories per ounce. The addition of the corn syrup increases the heat value to 25 or 30 calories per ounce. The acidity of the milk is represented by pH 4.0. Brahdy(13) has a method somewhat different than that of Marriott. The former makes use of a stock syrup solution of karo corn syrup (45 parts syrup and 15 parts water). The lactic acid together with the syrup is added to boiled or raw cow's milk and stirred for one minute.

The physiological effects of lactic acid has been studied by Hayem and Lesage(14). Fifteen to twenty grams of lactic acid may be ingested in 24 hours without producing untoward effects. However, when large quantities of this acid are consumed by adults, there results an increase in the output of ammonia and of acid phosphate, and a decrease in plasma bicarbonate. The amount of lactic acid ingested by infants is not large enough to affect the acid-base balance of the blood. Besides, lactic acid undergoes final oxidation to water and carbon dioxide, which volatile acid anhydride is blown off by the lungs.

PROTEIN MILKS MAY OWE THEIR EFFICIENCY TO THEIR ACID CONTENT

The various so-called protein milks may be regarded as lactic acid milks. The author is of the belief that their biologic efficiency is due to the acid rather than to the high protein. To quote from Hess and Matzner(15): "Finkelstein's protein milk, which, in our experience has proved a veritable boon in the feeding of atrophic infants, has a pH as low as 4.53". Finkelstein sought a milk for babies that could be used in all cases of diarrhea. He accordingly advocated his eiweissmilch. This is prepared in the following way: One-half ounce of rennin is added to a quart of whole milk and heated on a water bath at 105° C. for one-half hour. The curd, which is casein, and adherent fat, is filtered from the whey. The filtering is done through a linen bag, without pressure. The time taken is one hour, and the process is carried on in a refrigerator. The next step involves the stirring of the curd into about a pint of boiled water, and washed repeatedly through a fine sieve until the formation of a uniform emulsion. To the finely emulsified casein is now added a pint of buttermilk, which is lactic acid milk. The final volume is two pints or one quart. The last step in the preparation is sterilization by boiling. From the procedure outlined, we may say that Finkelstein's protein milk is a mixture of cottage cheese, and sour milk or buttermilk.

Stoelzner(16), in 1923, analyzed Finkelstein's preparation and compared the analytical results with that of whole cow's milk diluted with water to the extent of 50 per cent. His results follow:

	Protein Milk	Whole Cow's Milk (50 per cent dilution)
Protein	3.00 per cent	1.50 per cent
Fat	2.50	2.25
Lactose	1.50	1.75
P_2O_5	0.135	0.122
CaO	0.144	0.086

Since Finkelstein's investigations(17), many protein milks have been prepared. Most of them embody Finkelstein's idea with slight modification(9). Hoobler simplified Finkelstein's process by adding commercial casein to buttermilk. Mead-Johnson's powdered protein milk is calcium caseinate powder made from milk prepared according to Finkelstein's method. Hoos' albumin milk is dried milk prepared according to Finkelstein. Merrell-Soule's powdered protein milk combines the high protein principle of Finkelstein and the lactic acid principle of Marriott. Protein S. M. A. (Acidulated) is another product which embodies both principles.

The following table gives the hydrogen ion concentration and lactic acid content of some of the protein milks on the market. The figures are taken from Blenkle(18).

	pH	Free Lactic Acid
Hoos' Albumin Milk	5.5	0.25
Mead's Protein Milk	5.0	0.25
Acidulated Protein (S. M. A.)	4.6	
Finkelstein's Protein Milk	4.53	
Merrill-Soule Protein Milk	3.8	0.25

ACETIC ACID MILK IN INFANT FEEDING

Besides hydrochloric acid and lactic acid, acetic acid has also been employed. Dunham(19) uses as the source of this acid apple cider. The particular preparation employed by him is Heinz pure apple cider vinegar, which has the composition following:

Acetic acid	5.0 to 6.0 per cent
Alcohol	0.0 to 0.4 per cent
Ethyl acetate	0.3 to 0.9 per cent
Lactic acid	0.8 to 1.2 per cent

Reducing sugars	0.4 to 0.6 per cent
Glycerine	0.2 to 0.4 per cent
Phosphates	0.028 to 0.032 per cent

The acidified milk is made up by adding 30 c. c. of vinegar to 15 ounces (450 c. c.) of cow's milk. This proportion can be attained by mixing one teaspoonful vinegar with each 3 ounces of milk. The concentration of acetic acid is ⅓ per cent and the concentration of hydrogen ions corresponds to pH 4.42. This vinegar milk is used until about the tenth month, after which it is gradually replaced by sweet milk.

This type of acidified milk has an agreeable taste and a faint apple cider flavor. The curd from the milk is fine, smooth and flocculent. There are no physiological or pharmacological reasons against the use of acetic acid. The acetates exert no poisonous action, as do the oxalates and tartarates. They are more readily absorbed from the intestine than lactates or citrates, and thus have less laxative properties. They have no diuretic action. The acetates are devoid of toxic action. Sollmann(20) fed daily to rats for several months massive doses of 0.25 per cent of acid equivalent in man to 8 ounces of vinegar (5% acid). No adverse results were observed. Acetic acid does not disturb the acid-base balance in the blood, for it is oxidized to carbon dioxide and water.

CITRIC ACID MILK IN INFANT FEEDING

One of the most important acid modifications of milk is that of Hess and Matzner(15). The object of their investigation was to introduce a plant product which carried acid as well as the anti-scorbutic substance, water-soluble C. They at first attempted to use tomato juice, the pH of which is 4.2, but later turned to orange juice, which has an acidity represented by pH 3.54 to 3.71. They discovered, however, that it would be necessary to employ a large quantity of orange juice to bring the milk to a desired acidity. They found that it would require over 200 c. c. to bring a liter of cow's milk to pH 5.49.

In view of the prohibitive cost of oranges they finally capitulated in favor of the lemon. Less juice of this fruit is needed, since it is highly acid (pH 2.12) and contains 6 to 7 per cent of citric acid. It is of interest to add that citric acid is a natural ingredient of cow's milk, and that the quantity of this acid increases when the fodder of the cow is changed from stall feeding to grazing. The milk obtained from a cow on pasture is also richer in the anti-scorbutic vitamin. Since this dietary essential is unstable to alkalies and stable to acids, one can readily see why it is found in great abundance in tomatoes and lemons, and why summer milk, containing a larger quantity of anti-scorbutic substance than winter milk, should also carry a greater content of citric acid.

Lemon juice is a wise choice. As already mentioned, it contains sufficient acid to react with the buffers in the milk and it is rich in water-soluble C. The juice of the lemon can be added directly to cow's milk without bringing about curdling. According to Blatherwick and Long(21) large amounts of citric acid, in fact in amounts very much larger than is employed in the preparation of acid milk, can easily be taken care of in the organism through oxidation to carbon dioxide and water. From the standpoint of the mother, the use of milk already containing anti-scorbutic substance is time saving and convenient, for the giving of anti-scorbutic substance apart from regular feedings is done away with.

The preparation of the acid milk of Hess and Matzner is very simple. If undiluted milk is used, the lemon juice is introduced drop by drop and the mixture stirred after each drop. This slow introduction of acid is necessary to avoid curdling. When 21 c. c. of lemon juice is added to one liter of milk, the pH of the acidified milk is 5.54. When the milk is to be diluted with water, the lemon juice is first added to the water, and the latter slowly added to the whole milk.

Hess and Matzner report that in no instance did the change from non-acidified to acidified milk lead to a refusal of food or cause any digestive disturbances. The stools were not abnormal in color or consistency. The infants made good gains in weight.

The formula for the diluted milk employed by Hess and Matzner is given as follows:

Milk	24 oz.	710 c. c.
Water	12 oz.	355 c. c.
Sucrose	½ oz.	15 gm.
Lemon juice		21 c. c.

The pH of this mixture is 5.39.

At three months of age this mixture, composed of two-thirds milk, is fed at intervals of four hours. At about six months vegetables and cereals are introduced along with the citric acid milk.

In addition to the acid-carrying anti-scorbutic substance, Hess and Matzner recommend the use of iron with cow's milk. According to Soxhlett(22), human milk contains 1.6 milligrams of ferric oxide or 1.12 milligrams of elemental iron per liter. Bahrdt and Edelstein(23) give figures of 1.77 milligrams of ferric oxide or 1.24 milligrams of iron. Nottbohm and Dorr(24) determined the iron content of cow's milk to be 0.3 to 0.7 milligrams of ferric oxide per liter. or 0.2 to 0.4 milligram of iron. Human milk is therefore very much richer in iron than cow's milk. To offset this deficiency in cow's milk, Hess and Matzner add one egg yolk to the mixture. According to Langworthy(25), the average egg yolk weighs 18 grams, while Serono and Palazzi(26) put the weight at 19 grams. Leach gives the ash content of egg yolk as 1.1 per cent. On calculation we find that the yolk of egg contains 0.198 gram or 0.209 gram of ash. Taking 1.65 per cent as the iron content of this ash, we arrive at the figures, 3.26 milligrams or 3.44 milligrams, as the actual amount of ferric oxide present in one egg yolk or in terms of iron itself, 2.30 or 2.40 milligrams. From these analytical figures and computations we see that an egg yolk, added to the daily milk allowance of the infant, contains enough iron to make good in cow's milk the deficiency in this important biologic element.

Egg yolk has another nutritional advantage, which we must not overlook. It contains the anti-rachitic factor, vitamin D. Mellanby(27) observed that two yolks added to the dietary of a dog that had developed rickets, and found that this addition had a curative effect. Hess(28) demonstrated that egg yolks possess marked anti-rachitic properties for animals and for infants. He finds that this article of food is well tolerated, and he recommends it as a valuable supplement to the dietary of even young infants as a protection from rickets, in the same manner as orange juice is utilized as a preventive of scurvy. This able investigator claims that egg yolk has also curative value but definitely less than that of cod liver oil. According to the recent report of Tso(29), egg yolk, like cod liver oil, has the power of increasing the absorption and assimilation of calcium.

It is interesting to note the effect on hydrogen ion concentration of the addition of lemon and of egg yolk. The following table is taken from Hess and Matzner:

	pH
One egg yolk plus 3 c. c. of water	5.95 to 6.15
One egg yolk plus 6 c. c. of water	6.04 to 6.26
Whole milk	6.53 to 6.64
Whole milk plus 2.8 per cent of lemon juice	5.35
2-3 milk plus 1-3 water plus 2.8 per cent of lemon juice	4.68 to 4.74
2-3 milk plus 1-3 water plus 2.8 per cent of lemon juice plus 2.2 per cent egg yolk	4.83 to 4.85

We shall now compare the hydrogen ion concentration of the various acidified milks(30).

	P. H.
Hydrochloric acid milk (Faber)	6.0
Citric Acid milk (Hess)	5.3
Acetic acid milk (Dunham)	4.2
Lactic acid milk (Marriott)	4.0

The hydrogen ion concentration of lactic acid milk is, we believe, more ideal than that of the mixture of Faber or Hess. Lactic acid milk is sterile, and it has also a definite antiseptic action. No growth in lactic acid milk occurs in twenty-four hours after the addition of a portion of stool. The colon and dysentery group are destroyed by lactic acid milk, and also typhoid, paratyphoid, diphtheria, and tubercle bacilli, because the hydrogen ion concentration, pH4, which destroys them, is also the hydrogen ion concentration of Marriott's lactic acid milk.

We recommend the addition of more lemon juice to the yolk-milk mixture of Hess and Matzner in order to increase the acidity. In goiterous district, as in the Middle West, the addition of minute amounts of iodin is also recommended. The maximum total store of iodin in a strictly normal human thyroid does not exceed 25 milligrams(30a). The minimum requirements per year is an intake of 300 milligrams of iodin. We, therefore, advise the addition of one-eighth of a milligram of iodin to a quart of milk. A solution can be made and kept in the refrigerator containing 150 milligrams of sodium iodide in 127 c. c. of water. Two drops of this solution contains one-eighth of a milligram of iodin.

The mixture we recommend is a modification of Hess and Matzner. Its pH is 4.8 to 4.9 and composition is as follows:

Undiluted Formula

Milk, 24 oz.	710 c. c.
One egg yolk	18 grams
Sucrose	15 grams
Lemon juice	40 c. c.
Sodium iodide (150 mgs. in 127 c. c.)	2 drops

The addition of this amount of unfiltered lemon juice brings the hydrogen ion concentration of the milk from pH 6.5 to 4.8 or 4.9.

Diluted Formula

Milk, 24 oz.	710 c. c.
Water, 12 oz.	355 c. c.
Sucrose, ½ oz.	15 grams
Lemon juice	40 c. c.
One egg yolk	
Sodium iodide (150 mgs. in 127 c. c.)	2 drops

The pH of this mixture is about 4.6.

CLINICAL TESTS FOR THE BIOLOGIC EFFICIENCY OF ACIDIFIED MILKS

The acceptability of any new biologic method with reference to infants depends upon several factors. These relate (1) to the general appearance of the baby; (2) to its disposition with reference to contentment or to irritability; (3) to the absence or presence of a tendency to infection; (4) to the working of the gastro-intestinal tract with respect to appetite, to presence or absence of digestive disturbance, such as vomiting, flatulency, constipation, diarrhea, type of stools; (5) to rate of growth; (6) to tissue turgor; (7) to musculature. In the light of the factors enumerated, investigators unanimously conclude that acid milks are of a decided advantage in the rearing of babies. It may also be stated that the cost of these products is not very great, the acids employed are easily available, and the mixtures with reference to palatability are not refused by infants.

INDICATIONS FOR ACIDIFIED MILKS

Acid milks may be used without previous dilution with water. They, therefore, furnish a valuable means of concentrated feeding. According to Bela Schick⁽³¹⁾ this type of feeding is especially indicated in nervous vomiting, in pylorspasm, in diseases associated with difficulty in feeding, and in disorders of water balance, as in enuresis, in cardiac insufficiency, in nephritis, and in edema. Finkelstein says that the percentage of well thriving babies is higher when concentrated mixtures are prescribed.

Acid milk is useful in many of the ills of infancy. Marriott and L. T. Davidson(32) observed that badly nourished infants showed a definite acid deficiency in the gastric juice. Marriott, therefore, employed it in the treatment of malnutrition. In the St. Louis Children's hospital Marriott was able to bring a mortality resulting from athrepsia from 78 per cent down to 26 per cent. Sherman and Lohnes(33) used acidified milks successfully in difficult feeding cases. Gleich(34) found it of value as a complementary food to breast milk.

Green, Withington and Friedman(35) found acidified milks of great benefit in the treatment of gastro-intestinal disturbances. Faber and Hadden(10) obtained good results in the handling of cases of diarrhea. In this connection it must be said that Finkelstein used acid milk as a base for his eiweissmilch or protein milk for the treatment of diarrhea.

In infantile tetany, Babbott, Johnston and Haskins(36) showed diminished gastric acidity. Under the conditions of their test meals, they found that the hydrogen ion concentration of the gastric contents of normal infants of four to twelve months of age could be represented by values for pH varying between 3.9 and 4.6. On infants with tetany, the gastric acidity was lower, since the average pH was 5.3. Keeton(37) demonstrated diminished tonus and diminished gastric acidity during parathyroid tetany.

Acid therapy has been successfully employed in tetany. Scheer and Salomon(38) have found it possible to clear up the symptoms of tetany. Similarly good results were obtained by Wilson, Stearns and Janney(39). Inouye(40) employed in experimental tetany a diet containing galactose or lactose. This investigator contends that the carbohydrates stimulate the development of an acid-producing flora in the intestine. Babbott, Johnston and Haskins(36) found in infantile tetany that return to normal gastric acidity and normal emptying time took place simultaneously with a rise in the serum calcium and with the disappearance of the clinical symptoms of tetany. Gastric tetany and tetany due to hyperpnea also respond favorably to acid treatment.

Equally brilliant results in the treatment of tetany were obtained by Friedenberg and Gyorgy(41) with the use of ammonium chloride. Haldane(42) has shown that ammonium chloride and the chlorides of the alkaline earths are metabolized to a large extent like hydrochloric acid.

Rickets is another disease in which acid milk is indicated. Abrahamson and Miller(43) studied the hydrogen ion concentration in the gastro-intestinal tract and observed in the stomach acid in the small intestine a diminished acidity. Jones(44) employed hydrochloric acid milk in experimental rickets and also in the treatment of rickets in children. The new therapy proved as favorable as the administration of cod-liver oil or the application of ultra violet rays.

It will be recalled that in a previous paper(45) we emphasized the fact that the acidity of the stomach and of the duodenum play a great part in the absorption of calcium. When the gastric acid is very low, the contents of the intestine never becomes acid enough to allow the calcium compounds to remain in solution, so that absorption may take place. Feeding acid milk keeps the duodenal mucosa acid enough to allow the calcium compounds to remain in solution. When calcium is allowed to be absorbed, the serum may reach normality with reference to calcium content. With serum containing the proper number of calcium ions, tetany is prevented or done away with. So far as rickets is concerned, the absorption of calcium permits the organism to assimilate this element for bone building as well as for keeping the neuro-muscular mechanism in equilibrium.

Acid milk is also indicated in coeliac disease. Marriott, Davidson and Harshman(46) reported an interesting case in an infant two years of age, who was in a miserable physical condition. The pH of the stomach after a meal of breast milk was 5.5 to 6.0. The absorption of fat from the gastro-intestinal tract was only about 10 per cent. Six months later, when the same infant was in better condition, and was making gains in weight, the gastric acidity improved from pH 3.0 to pH 3.3 following a meal of undiluted milk, and the quantity of food fat absorbed was about 70 per cent.

The use of acid milk is so appealing to the writer from a biologic and also from a chemical standpoint that he recommends it not only as a routine procedure for infants, but also as a dietary procedure for adults in any condition where gastric acid is low or absent. Fever is responsible for marked diminution of gastric acidity and gastric mobility, and in the abeyance of appetite. In typhoid fever, for example, instead of ordinary milk feeding, acidified milk would be of great advantage for the process of digestion and absorption. Pernicious anemia is another disease where acid milk can be tried out with benefit.

A FALLACY IN PEDIATRIC TEACHING POINTED OUT

It is interesting to note that a high percentage of sugar can be added to lactic acid milk without producing digestive disturbances. In fact, fat as well as sugar, can be better handled by the infant on acidified milk. It is apropos to mention that in pedriatic teaching we often stress, and wrongly so, the evil effects of high fat, high carbohydrate or high protein diet. It is very doubtful whether a high fat, high carbohydrate or high protein content is of itself responsible for any of the gastro-intestinal disturbances usually attributed to excess of any one of these. A great lesson of food essentials, paramount importance to the pediatrician is expressed in the nutritional postulate that it is not what we give in the way of diet but what we fail to give that makes for poor results. The cardinal sin in nutrition is omission, not commission. Let us illustrate more fully. Frequently we hear of a baby that is not getting along well because it is being fed too much carbohydrate, too much fat, or two much protein. The blame is usually plastered upon the food given in excessive quantities. In reality the youngster is receiving two much of one nutriment and too little or none of the others. Thus a baby fed too much fat is probably getting too little protein or carbohydrate or too little of the other indispensable food accessories. Cutting down the fat intake may improve markedly the condition of the child, for it is now possible to introduce some of the other nutritional necessities of life.

A high protein diet usually means a high meat diet. The meat we eat consists mostly of muscle cuts and these McCollum(47) regards as inadequate and inferior in comparison with the visceral organs. Excessive meat eaters, as a rule, use also comparatively large quantities of degerminated cereal products and tubers. Such faulty diet contributes to early physical deterioration. Meat supplemented with fresh fruit, vegetables and dairy products, however, provides complete and adequate nutrition. High "protein diets" or high meat diets may be inadequate because of a failure to use proper supplementary foods. Failure must not be attributed to the quantity or quality of the protein alone. Diet should be considered in the ensemble and with special reference to the completeness of every essential factor. McCollum sums up the situation of high protein diet in the following: "Since in this country the term high protein diet is generally synonymous with 'high meat diet,' it will be seen that disturbances of nutrition believed to be referable to excessive protein ingestion, may well be due, not so much to the amount of protein eaten, but to failure to take a complete diet. Such a diet is only to be secured through the proper selection of foods which make good each others deficiencies. It is the completeness of the diet rather than an unusual amount of some one factor which is the most important consideration."

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THE APPLICATION OF BUSINESS PRINCIPLES TO THE PRACTICE OF MEDICINE*

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The application of business principles to a profession does not constitute commercialism. A professional man becomes a business man when he lays excess stress upon the business side of his profession. The prime purpose of a profession is to render service to humanity, the making of money being only a necessary requirement to accomplish the purpose. The prime purpose of commerce is to make money, the rendering of service being a means to this end. We are living in a commercialized environment with every organization from the smallest community interest to Wall Street engaged in financial problems and influenced by the edicts of business which tends to destroy a profession.

The medical profession composed as it is of organized and unorganized groups of individuals who have acquired special knowledge and training not common to society as a whole has become a public necessity. When any organization becomes a public necessity it is on the border line of public control, so-called regulation. This doctrine is universally accepted and a precedent has been established in dealing with public utilities. Will the medical profession profit by the experience of public service corporations or will it continue to maintain an obsolete conservative individualism until its autonomy is lost?

The ever increasing demand of the public has been one of the most difficult economic problems of public service companies. This demand has likewise caused an unbalanced condition in the practice of medicine. The cost of producing the service requested at this time is greatly out of proportion to the net return to the producer. The net return must in some manner be increased without added expense to the public and in my opinion the most equitable way to accomplish this is by lessening the cost of production.

A survey of the medical economic condition in Nebraska shows the following:

Approximate number of physicians (not cultists) ----------------------------	2,000
Average closely estimated gross earnings from medical practice exclusively, per year --------------------------------$	6,500
Total closely estimated yearly gross earnings ------------------------------	13,000,000
Losses: The three principal causes of losses are, reduced fees; compromise settlements and non-payment of fees. These represent an estimated average loss of 20% or $2,600,000 each year, which if deducted from the gross earnings leaves a total net income of------	10,400,000

THE COST OF PRODUCTION:

Capital Stock. It is difficult to determine accurately the capital stock. The average cost of a medical education for college expenses is about $1,000 per year. The loss of earnings either to the student or his parents during this period is approximately $1,200 per year. To these should be added the loss sustained in devoting six or seven years of time to college study which if devoted to industry would have aided materially in establishing an individual. This does not include the indirect cost through taxation for the maintenance of the medical college. It is now and has been for several years costing the state approximately $6,000 per year for each medical student in the University Medical College. This appropriation closely approaches a subsidy to the medical profession, and I predict that some day this policy will be one of the Frankensteins of medicine. Taking a cross section of the profession I estimate the average capital stock represented by money and time invested in education to be ----------------------------	10,000
Interest on a capital stock investment of $10,000 per physician at 5% per year—total 2,000 physicians ----------------	1,000,000
Personal maintenance: Board, room, clothes, recreation, and sundries, an average of $100 per month, $1,200 per year per physician—total for 2,000 physicians ----------------------------	2,400,000
Office: Rent, heat, light, clerical and sundries average per year $500 per office,-per physician—total for 2,000 physicians	1,000,000

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*Read before the Lancaster County Medical Society.

Supplies, drugs, equipment, replacement, depreciation and interest on money invested in these items, average per year $480 per physician—total for 2,000 physicians	960,000
Transportation: Auto, original cost, and interest on cost, depreciation, gas, oil, upkeep and interest on these items average per year $700 per physician—total for 2,000 physicians	1,400,000
Taxes: Personal, property and special average per year $20 per physician—total for 2,000 physicians	40,000
Insurance: Personal, property and special average per year $175 per physician—total for 2,000 physicians	350,000
Education: Books, magazine, society dues, medical meetings, clinics, and post graduate expenses average per year $50.00 per physician—total for 2,000 physicians	100,000
Total cost of production per year, for 2,000 physicians	7,250,000
Total collected earnings, the gross income, for 2,000 physicians	10,400,000
Total NET earnings, for 2,000 physicians	3,150,000
Average NET earnings per physician (as an individual)	1,575

A survey made during the fair wage controversy shows that the lowest amount upon which a skilled laborer can keep a family is approximately $2,500. The average physician is existing upon a lower net income than is said to be necessary for a skilled union laborer.

Every item in the production of our income with the possible exception of professional ideals is controlled directly or indirectly by individuals closely or loosely organized for financial reasons. Our revenue is from organized and unorganized groups of individuals. In the first class, such as labor unions and corporations the avowed purpose is to make money and to a large extent laws have been enacted to not only assist but in some instances guarantee it. In the second class, with the exception of teachers, ministers, lawyers and dentists who represent a small percentage, it may be safely said, the universal objective is the accumulation of wealth.

As an illustration of the present day psychology of the business and political world as applied to the medical profession, let us review the supervision of the Workmen's Compensation Law. This law is based upon the theory that industry should sustain the loss which occurs from injury to its human units in the same manner as it bears the loss of material, machinery and the lower animals used in its activities. To accomplish this employers are required to furnish and pay for medical treatment and hospitalization necessary for the repair of damage to human beings incurred while employed. Drugs, ambulances, hospitalization, shoes, braces and special material used in the treatment of injured employees are products of the business world and the employer pays the prevailing price for these articles. The physician is paid a fee considerably less than is customarily charged patients able to pay. An employer rated at from $5,000 to $10,000 should be placed in the class of those "able to pay."

A fee schedule is not incorporated in the law but provision is made for reasonable medical and hospital services and medicines, not to exceed the regular charges for such service in similar cases and subject to the approval of the Labor Commissioners. Labor Commissioners are political appointees and presumably represent their superiors. They are seldom endowed with a comprehensive knowledge of scientific medicine and it would seem that they violate the letter and the spirit of the law when they refuse to approve charges that are reasonable and in conformity with the regular charges for similar services in a given locality. In most instances payment is made on an assumed schedule by an insurance adjuster. This agent is employed by an insurance company whose prime purpose is to produce financial returns and the adjuster's job depends to a large extent upon how much he can save the company. The physician is paid a reduced fee for his services by this insurance company but if he purchases insurance from this company he will be required to pay the prevailing rate for it.

The repair of a truck, an elevator, a show case or any piece of machinery owned by industry is paid for at the customary fee for such work. Now, whether it is a human being or a piece of machinery that is repaired the cost of the item is charged to overhead expense and passed to the public for reimbursement.

If a physician has a house built or repaired, plumbing installed, an auto repaired or if he buys any article of commerce he pays some employer of labor the prevailing price for the service or commodity in cash or its equivalent while at the same time he is expected to render professional service to this employer, for a fee below the schedule charged those "able to pay."

The present compensation law does not limit the amount that shall be expended for medical treatment. The law enacted by the last legislature through the efforts of the Manufacturers Association and which was vetoed by the Governor, placed a limit of $200 for the medical treatment of any injured workman. Obviously the result would have shifted the burden from industry to the medical profession. A valuation of approximately $5,000 is placed upon an employee by the Compensation Law. Can you imagine the Manufacturers Association sponsoring an enactment limiting the expense to $200 for the repair of a piece of machinery valued at $5,000.

Now either the theory upon which the law is based is unsound or its administration is. If accurate scientific conclusions are to be reached in this social experiment, the same relative measure of value must be applied to professions as to industry.

The illustrations cited represent nearly every phase of the present day attitude of business men and most individuals toward the medical profession. I have heard physicians deprecate the discussion of business in medical circles. It is not a question of the medical profession entering the business world. It is already in it, has been in it, and cannot get out of it unless some fairy endows it with fabulous wealth which is not probable. The question is, how can a profession be adapted to a commercial environment without the loss of its essential attributes and integrity. I believe that the first requisite for this adaptation is increased earnings through savings by closer cooperation and the application of established business methods without raising, (and if possible by decreasing) the cost of service to the public.

The following outline of recommendations based upon the items used in the scale of productions represents the first step in my solution.

MEDICAL SAVINGS

Office: Rent and maintenance can be reduced by owned buildings, cooperative offices and clerical help. Office Building Finance Corporations should be formed within the medical fraternity to finance building operations where needed. In the larger cities, medical offices should be moved outside the high rental retail district. This would not only make a rental saving of approximately 30% but would be more convenient for patients and physicians. A general saving of 10% can be accomplished by this program or a total of____________	$ 100,000
Office: The standardization of equipment, drugs, instruments and supplies will eliminate multiplicity and duplication which will afford quantity production, lower costs, allow for storage depots and provide a saving of 10%, a total of ____________________________	96,000
Transportation: Standardized transportation with quantity buying and maintenance contracts will make a saving of 10%, a total of___________________	140,000
Insurance: Group insurance contracts will save 10%, a total of_________________	35,000
Education: Agent's commissions on medical books and magazines can be saved by authorizing a State or County Medical Purchasing Officer or empowering the State Secretary to perform this function and this should be done.	
Societies: Innumerable and overlapping societies have no justification for existence. They are expensive and tend to dissipate medical activity and force. They should be combined to form a single effective organization, with such divisions as are necessary to facilitate their function.	
District Clinics: District meetings in the state, or groups of states afford efficient post graduate facilities. It is many times cheaper to bring a few competent instructors to a district center, than to convey a large number of physicians to several clinical centers. A savings of 20% can be made by these changes, a total of__________________	20,000
Losses: Deserving charity should not be eliminated from the medical profession and can always be given with little material loss. Unnecessary losses should be prevented. At present it is the custom to charge the rich an excessive fee to offset these losses. This practice is neither charity nor good business. It is a demoralizing credit extension. The term, rich, is as relative as the term, poor. In actual practice the custom resolves itself into charging the individual who is thrifty and pays his obligations promptly an excess fee in order to be able to render service for those who will pay the hatter, the garage, gas station, movie theater and Auto Finance Corporation but who never acquire the moral or financial integrity to include the doctor. The prevention of reduced fees and total losses can be accomplished by cooperation, by combatting distructive shopping practices, undermining personal propaganda and demoralizing credit extension, and by adopting by common consent of a reasonably uniform schedule of fees for general and special services, in each locality and adhering to it. A saving by this policy of 60% of the present losses can be affected, a total of_____________	1,650,000

A total saving by this program as outlined of $2,041,000 per year, can be accomplished. An average saving of $1,021 per physician per year which if added to the present net income makes $2,600 per year. This amount is approximately the sum considered necessary to properly keep a union coal miner.

The Chamber of Commerce would no doubt welcome an opportunity to entertain without charge the president or members of the Board of Directors of a $20,000,000 organization. I am willing to gamble that no Chamber of Commerce has ever placed the medical profession of Nebraska in that category and we would likely be shocked, if not offended, were it done.

A modern $10,000,000 a year organization that could by a little effort and the application of business methods save $2,000,000 annually would do it. Will the medical profession of Nebraska? I have no illusions; it will not.

Medical economics is one of the most vital subjects facing present and future scientific medicine. The physician is primarily a human being. He must more than live if he would preserve his ideals and acquire the culture that is necessary to serve humanity justly and efficiently. If we are not willing or competent to solve our problem, the public will do it for us in which event the solution will not favor us for notwithstanding the prevalence of prayers, eulogies, lectures and dogmas, all being useful measures to modify primeval instincts, the public remains a very materialistic body.

CHRONIC, NON-SUPPURATIVE ARTHRITIS

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Chronic, non-suppurative arthritis is one of the most baffling problems which confront the practicing physician of today. Although it is one of the oldest known diseases, its history reaching back into the dim dawn of human record, nevertheless we have accomplished relatively little toward relieving the sufferer afflicted with it. The thin, emaciated individual with gnarled hands, or the apparently healthy and well-fed one whose painful knees or stiff back barely permit him to get about, are among the most pitiable cases that enter your consulting room.

It is a baffling condition from the very beginning of our study of it; thus far there is even no satisfactory basis for classifying its various forms. One hears all sorts of names: atrophic and hypertrophic arthritis; arthritis deformans; Heberden's nodes, all of which are without clear pathological significance.

Among the few points which I wish to emphasize in this discussion, the first and most important is that when we study and treat a case of arthritis, we must not limit our study and treatment to the patient's joints. Such a patient has numerous other troubles. All of our modern evidence points to some systemic process, of which the joint affection is only one of the manifestations. It is the one most prominently noticed, because its effects are most easily felt and seen. Just what this systemic process is, is not always clear; in some cases it is an infection, in others a disturbance of metabolism; in no case has its mechanism been completely worked out. All that we can do at present is to recognize and treat its manifestations; and the more thoroughly we cover these, the more we are accomplishing for the patient.

Recent literature is in fair agreement on the following rough classification; names may differ among the writers, but the general types as described correspond fairly well.

1. The Infectious Type. It is this type which the work of Rosenow and Billings on focal infection, has placed so vividly before the medical and lay public. It is characterized by the involvement of many large joints, and of the proximal and middle joints of the fingers; its age incidence is that of young adult life to middle age. It occurs usually in thin, asthenic persons, with narrow costal angles and visceroptosis. It is accompanied by vasomotor depression, manifesting itself in low blood-pressure, pallor, and cold hands and feet. The patients are markedly susceptible to hay-fever, asthma, and urticaria, all of which have in common the suggestive factor of deficient calcium metabolism. The pathology is that of articular and periarticular atrophy and destruction.

II. The Metabolic or Constitutional Type. In this type, infection is also at least a contributing factor; even in this type, the search for foci of infection in the patient cannot be neglected. But metabolic factors also are concerned. Hench, of Rochester, refers to it as the senescent type; it occurs frequently in patients past middle life. It involves most often the spine and knees and the distal joints of the fingers. There is a mild hypertension, often an arteriosclerotic factor, a low basal metabolic rate, and a moderate progressive obesity. There are no red, boggy, painful periarticular swellings. The lesions are hypertrophic changes in bony structures in and around the joint.

These types correspond to Goldthwait's infectious or atrophic type, and hypertrophic type. There may be mixed types, which render the study of the individual case confusing. In the following discussion, the two types will be treated together, as there is but little difference in the way they are handled clinically.

As has been mentioned, the arthritis patient has numerous other symptoms than those in his joints. In general, they are other phenomena of the same infectious or metabolic process that is producing the joint reaction. They should be carefully sought and recognized, and treatment instituted to give as much relief or correction as possible.

Heart lesions are very common in arthritic cases, apart from a history of rheumatic fever. These mean always involvement of the heart muscle, which may or may not be accompanied by lesions of the valves; its etiology is infectious, and usually the identical infection that caused the arthritis. A chronic kidney involvement, with albumin, casts, low specific gravity, and retention of fluid or nitrogen, is frequently met with; and as infection is now well established as one of the causes of this condition, it is again reasonable to suppose that the nephritis comes from the same source as the arthritis. The same may be said of arteriosclerosis, definitely an infectious process. Anemia is frequently found, and probably has the same cause. The cause of the achlorhydria gastrica so commonly found in chronic arthritis, is not so clear; but attention is called to its association with the anemia. Naturally there is a loss of appetite and, therefore, of weight; because of the enforced sedentary life, the infecticus toxemia, and the frequently existing ptoses.

In the treatment, the internist and orthopedist must cooperate closely, if there is to be any hope for the patient at all. The fact that these two may be combined in the person of one physician need not detract from their effectiveness.

The etiology must first receive attention. In searching for foci of infection, it is well to have a formal list of possible foci at hand, and to check them off as they receive attention in turn. The following is the one by which I work:

1. Mouth and teeth.
2. Throat and tonsils.
3. Paranasal sinuses.
4. Middle ear and mastoid.
5. Cervix uteri.
6. Prostate and seminal vesicles.
7. Appendix vermiformis.
8. Colon.
9. Rectum.
10. Kidney pelvis.
11. Urinary bladder.
12. Gall-bladder.

The eradication of the focus of infection will prevent the further spread of the arthritis, and it will take the excess burden off the patient's system; in most cases it will hardly do more than that. In the usual case of arthritis the joint process is well established and independent of further supply of infection from the focus; and in view of this, it is well to make clear to the patient what should be clear to the physician, that the removal of teeth or tonsils will not necessarily cure the joints.

All defects other than foci of infection should be found and corrected, in order to relieve the patient's system of excess burden. Very often the repair of a hernia or of a lacerated cervix gives the patient an astonishing impulse toward recovery.

The next thing is to build up the patient, his physical body, and his resistance to disease. What he has lost in weight, strength, and systemic resistance has been partly because of the infectious or abnormal metabolic process concerned, and partly because of the enforced sedentary life, the dietary restriction, and the physic discouragement incident to a severe arthritis. No detailed directions can be given for this building-up regime, as each case has its peculiar requirements and limitations; only general methods can be outlined. These are:

Diet. This should be liberal, although we are at present getting away from the idea of stuffing debilitated patients; it should include the lighter proteins such as eggs and milk, whole-grain foods, and foods containing vitamin and undigestible residue, as fruits and vegetables. It is wise to avoid purin containing foods, as meat, coffee, meat soups and gravies, in order to lessen the work of the kidneys; and also to avoid more than about 1.5 grams of protein per kilogram of body weight, because of the increase in metabolism caused by high protein diet, and of the difficulty in eliminating its residues. It is often advisable to break away from the conventional size and frequency of meals, and to suit the individual patient's requirements and capacity in this respect.

Rest. This includes both mental and physical rest, and involves freedom from pain and from worry. Rest should preponderate in the early stages of the treatment.

Exercise. This is begun when the state of the patient's nutrition and the condition of his joints permits of it; and it must be specifically designed to meet the patient's needs and abilities. Definite suggestions are made under later captions.

Fresh air. The purpose of fresh air, its importance, and the method of securing it, are precisely the same as in the treatment of tuberculosis.

Elimination. The reasons for giving special attention to elimination are:

a. To eliminate the toxins of the disease process.

b. To counteract the retention caused by the enforced sedentary existence.

c. To eliminate the by-products of treatment; either of drugs, or of the reactions produced by other means.

d. To keep a weakened organism absolutely clear and in the best of condition, so that strength might be recovered, and so that complications might be resisted.

The channels of elimination, and methods of securing it, are:

a. The bowels. Strong purgatives are absolutely contra-indicated. Mild daily doses of saline cathartics are least harmful and most effective.

b. The kidneys. The drinking of plenty of water, and the taking of moderate amounts of alkali are indicated. Give the patient instructions as to how much water he must drink, and when.

c. The skin. Regular cleansing baths should be a routine. If further skin elimination is indicated, sweats should be secured by means of hot baths, hot wet body packs, autocondensation, deeptherapy lamps, or electric light baths.

d. The lungs. Good ventilation in the patient's room is indispensable to secure the proper elimination of water and carbondioxide.

Actiontherapy. This modality serves four important purposes.

a. It builds up the patient's general nutrition and his systemic resistance to disease.

b. It aids in overcoming the anemia, and in building up red cells and hemoglobin.

c. It improves the calcium metabolism, a deficiency in which is suggested by the characteristics in a previous paragraph.

d. It can be used to produce a local reaction around the joint.

Foreign protein parenterally. Both the specific therapy in the form of autogenous vaccines, or less desirably stock vaccines from organisms similar to the ones identified in the patient's body; and the non-specific type obtained by injecting milk protein, peptone, or a non-specific vaccine, are useful. They serve to build up immune bodies, increase leucocytosis and phagocytosis, and stimulate the sluggish system to more powerful defense reactions. I have found that the injection of 3 to 8 cc of ordinary milk, boiled for three minutes, is most effective, though it is so painful that patients often refuse a second dose. Milk antigens on the market are less painful.

Drugs. These are no longer being used to any great extent, except to meet incidental indications. Aspirin and cincophen are useful for pain, but are depressing in large or continued doses. Parathyroid gland is indicated for the deficient calcium metabolism. Digitalis, strychnine, dilute hydrochloric acid, will find uses in particular cases. I think it foolish to give iron by the mouth; it is not absorbed in the inorganic state, while the proper kind of food will supply the patient with all the iron he can use.

Occupational Therapy. Properly adapted manual employment serves two purposes: that of exercise in an agreeable form for the joints when they are able to take it; and that of encouragement. The patient who has been deprived of his regular occupation, and rendered helpless so that he has nothing to do all day but brood over his misery, will gather an immense amount of hope and cheer, resulting in actual physical improvement, from an opportunity to be doing something useful, and from the idea that he is still good for something. Something to do is one of the most important medicines that the doctor can provide; even though it tax the latter's ingenuity and inventiveness to find it.

Mechanical support. Support is often required locally, for the joint itself, on the principle that rest and metabolic economy are necessary locally as well as generally, for recovery. The support must be provided in such a way as to cause the least amount of discomfort and restraint to the rest of the body. It is not possible in this discussion to enter into the various kinds of splints and braces that are used. Support is also necessary to correct other physical defects; the posture by braces and corsets; the abdominal ptosis by proper belts; flat feet, painful sacro-iliac joints, etc. The correction of these associated conditions relieves the patients of excess burden, which relief is often sufficient to give the required margin of vigor with which to recover from his chief malady.

Diathermy. Locally, for the joints themselves, diathermy stands first in importance among the therapeutic methods. By its means we are able to get heat of the desired intensity to the exact spot where it is wanted. It relieves pain, and provides the increase of local nutrition that is required for improvement, and it relaxes the spasm with which the joint is often surrounded. There are two methods of applying diathermy: that of applying a cuff of mesh or block-tin above and below the joint; and that of passing the current laterally through the joint by means of mesh-covered sponges held in place by clamps. Treatments should last an hour or more; a little more time is far more beneficial than a few more milliamperes.

Massage. When skillfully and correctly applied, massage accomplishes a great deal toward nutrition, relief of spasm, and the loosening up of stiffened muscles.

Baking in hot-air bath. This is not used as much as it was before diathermy was introduced. The same may be said of hot water and hot moist packs, though these are useful because of their dehydrating effect.

Paraffin and oil baths, however, are useful. By their means, very high temperatures can be applied without injury to the skin. The deep therapy lamp is also very effective in relieving pain, and in smaller joints, of increasing local nutrition. Negative galvanism has similar effects to those of diathermy; it increases nutrition, relaxes spasm, and loosens adhesions and anky-loses. The infrared light has also been found useful for the same effects.

Passive and active motion. This is applicable when improvement has begun, to prevent ankylosis, if that is possible or desirable; to restore function to stiffened limbs; and to improve nutrition in the muscles.

Psychotherapy. The treatment of every disease has its psychotherapeutic side, and chronic arthritis is certainly a notable example. The poor arthritic patient has tried all the doctors and still more quacks; if he has money he spends it freely trying to get relief; and very often, every attempt in a new direction is but an added disappointment. Yet, each time he comes to a new physician, he expects a miracle. One of the greatest services a physician can do for him, is to make him see that a magic cure is not possible; to teach him to accept his unfortunate condition with equanimity and optimism, and to be grateful for every modicum of relief that is found possible. He may then still be a useful member of society, instead of continually beating against the bars of his limitations.

WHAT THE PEOPLE THINK OF US AND WHY*

G. O. Remy, M. D., Ainsworth, Nebr.

If you would know a man's reputation, go among the people with whom he daily associates and, without questioning, listen and remember what you hear. In this manner you may become familiar with his reputation, but his real character may still be in doubt.

In applying this test to the medical profession of the United States, we will be judging, not one individual, but a large body of individuals, not varying greatly in their general characteristics and character, from any other large body of people, or, from each other.

We will be forced in this test to cover lots of territory for doctors are scattered quite evenly from the Atlantic to the Pacific, and from the Great Lakes on the north to the Gulf of Mexico down at the bottom of the map. I have been listening in now for about forty-five years on what the people have to say about us, and have observed the treatment accorded us by the general public, and from what I have heard and observed, I am convinced that, as a class, we are not held in very high esteem by the people we serve. I do not think it would be fair to attribute all this lack of respect to the shortcomings of the medical profession. The people, through their lack of knowledge regarding the work we are doing, are unable to judge us fairly on all occasions; but I am convinced, from the universality of the feeling of doubt in the minds of the people regarding our honesty, our integrity, and our ability, that at least a part of the blame must be chargeable to the members of the profession themselves. Simple statements do not go far toward proving a point, so a few illustrations may not be out of place.

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*Read before the Eighth Councilor District & Holt County Medical Society.

I was seated in my office one day in conversation with a friend, a prominent business man of the town, and a deacon in the Presbyterian church, when a farmer came in carrying his little boy, about ten years of age, with a board strapped to his leg. I had him lay the boy upon a couch at the side of the room. He then told me that the boy had fallen and broken his leg. I removed the board and after examination and finding nothing the matter, I asked the boy to get up and let me see him walk. Here the father interfered and reminded me that the boy's leg was broken and that he could not walk. I asked the father not to interfere, but to let him try, whereupon the boy walked across the room without even a limp. In a few minutes the father and boy departed for home. When we were again alone, my friend remarked that I was the biggest fool he had met in a year. I assured him that the expression was quite familiar but that I was unable to see the connection in this particular case. "Well," he said, "the father thought the leg was broken, didn't he? Then, all you had to do was put it in a splint or in a cast to be sure of a good result and a good fee." And he was not joking either. He thought that was what any doctor would do under the circumstances. He, at least, did not have much faith in the honesty of doctors.

Again, you have a case in which you are in doubt regarding the diagnosis, and decide to try for help. You start your patient off with a letter of introduction to someone you feel will give you honest and efficient help. On the train, he gets in conversation with some stranger and unburdens himself regarding his trouble and where he is going. The stranger proves to be as garrulous as your patient and feels himself perfectly competent to offer advise and, the chances are, that your patient will prefer this advice to the advice you have given him, and consequently falls into the hands of a man entirely incompetent to render the help you desired. But, should your patient not meet up with this medium of free advice, then the chances are about two to one that he will visit, on his own initiative, two or three other doctors before visiting the one recommended by you. In each office, he will hear a different version of his case, or, at least, what appears to him to be a different version, because clothed in different language, and by the time he visits the last one he has lost faith in all doctors, and comes home more difficult to help than before he went away. Perhaps, you may not have had this experience, but I have, and I know others who have had the same experience. Either, we do, or. we do not, merit the full confidence of our patients. Be that as it may, incidents like these prove that we are not getting it.

Some years ago, when I was staying for a time at St. Joseph's hospital in Omaha, an Iowa doctor phoned Dr. Allison that he was sending in an appendix case on the evening train for operation. He said a friend in Omaha would meet the patient at the depot and bring him to the hospital. The patient did not show up at the hospital, but the next morning, Dr. Allison had a hurry up call to visit him at the home of this friend(?) and found the patient dying with general peritonitis. The friend had met him at the depot, all right, but, instead of taking him to the hospital, had advised him to go with him to his home where his doctor would cure him without an operation. The friend's doctor proved to be an osteopath, and the case a pus case—a walled-off abscess. You can easily get the connection between the friend's doctor and the peritonitis.

Such cases certainly go to prove that the doctor does not possess the confidence of the general public. Their distrust of his honesty and ability are deeply enough seated that advice from any other source is thought superior to his advice.

But why this lack of confidence on the part of the general public? For it does seem to be general. I am going to state some of the reasons which, in my judgment, have had an influence in bringing it about. I do not flatter myself that I have more than touched the main source of this disaffection, or that many of you will agree with me in what I have to say; but, if it causes you to think upon the subject, and to hunt for the cause of the trouble, then this paper will not have been in vain.

I have already stated that I do not hold the doctor entirely responsible for what is happening in the minds of the laity, but I do think that he has had, and is having at the present time, much to do with it. For this many different things and conditions are to blame.

Doctors are about as much given over to fads as are the members of the gentler sex. Some doctor who looms large upon the medical horizon, either because he is really big, or because he is thought to be big, has a vision and tries it out on a few cases, not enough to justify a decision either for or against it, and immediately rushes into print with something new. The lay press as well as the medical press take it up and—Bang!—the whole bunch of sheep who habitually graze on the doctors preserve follow the bell weather, and for the time being it is the reigning fad.

Some forty or fifty years ago, the study and use of antiseptics had advanced to a point where it was deemed safe to explore regions of the body heretofore only entered in cases of emergency, and laporotomy became the reigning fad. Every woman who entered a surgeon's office was in danger of losing, at least one ovary before she got away and those who did not die, for surgeons were not as expert then as they are today, lived on in misery to curse, not alone this one doctor, but all doctors for this unnecessary and dangerous operation which robbed her of organs necessary to the enjoyment of perfect health. Doctors as well as the people soon learned that this wholesale castration of women was a mistake, and it ceased. Today the conscientious surgeon does not remove even one ovary except for a well defined cause. Doctors may have forgotten this incident in the history of medicine and surgery, but the people have not, and it makes them suspicious of us.

We all know that an operation is not indicated or necessary in every case of tender appendix. Time and proper treatment will often remove the offending cause and the patient get well and remain well. The people have learned to be quite expert in the diagnosis of appendix trouble, and they have seen so many cases get well when no doctor was consulted that they too know that an operation is not always necessary, and many times refuse to consult a doctor for fear that he will insist upon an operation. But, notwithstanding this, an operation is usually the first thing recommended and insisted upon; especially if the doctor consulted happens to be one who does his own operating.

Focal infection, that much overworked explanation for all manner of aches and pains and diseases, is the latest fad of the professional fadist. The indiscriminate removal of tonsils and the extraction of teeth have become so common that it is a joke with the laity in every community; and yet, this bloody sacrifice goes on. Children are the greatest sufferers at the hands of the tonsil butchers. It is well known to every doctor and surgeon that the tonsils are naturally large up to and including the period of adolescence. This is, no doubt, due to a greater demand upon them during this period of life, but it also furnishes the doctor with reasonable propaganda for their removal, and out they come. They can be easily removed and with but little danger to life, and their removal brings in a good sized fee considering the time required and the risk assumed, and for this, more than for the good of the patient they are being removed by the hundreds every day. There may be a few rudimentary muscles about the body that we could get along nicely without; but I have never heard anything about rudimentary glands. Every gland has its use in the economy of nature, even though we may not know exactly what all its uses are; and when we remove a tonsil, not because it is diseased, but because it is a little large and will furnish us with something to do, we have stolen from the patient something of vastly more importance to him in his life than the money we have stolen from him for an unnecessary operation. If the removal of a tonsil produced a deformity equal to the removal of a hand or foot, they would only be removed for the same reason that a hand or foot is removed; the best interest of the patient; and the number of tonsils removed would not greatly exceed the number of amputations of feet and hands.

How many doctors, the country over, when they have examined a patient and found nothing in his case calling for the use of drugs, charge him a fee for the examination and advice and send him away without a bottle of medicine, or a box of tablets? Not an overwhelming number, I am forced to believe. For this infraction of the law of honesty and upright dealing, they soothe their conscience by the same process of reasoning that a chiropractor attempted to justify spinal adjustment in a conversation with me not long ago. He said, "A party comes into the office complaining of some trouble somewhere. I place him upon the table and go over the spine, and say, 'I have found your trouble, you have a vertebra that is dislocated and pressing upon a nerve!' " "Now it is not necessary," the chiropractor said, "that I find a vertebra out of alignment, and I don't know if it were, whether or not it could press upon a nerve, but I can move one vertebra upon another and, what is of the greatest importance, the patient can feel it move, and when he feels the movement, he says to himself, 'Yes, he was right, I felt that go into place.' "And this belief acting upon his subconscious mind sends him away satisfied; and because of the belief that I have replaced a dislocated vertebra, he is better." Plenty of doctors today expect more from the action of the subconscious minds of their patients than from the drugs administered, and yet they haven't a good word to say for either the chiropractor or the Christian scientist.

Then there is the doctor who always has such very bad cases. It he had not been called just when he was called, there would have been no hope of saving the patient, but he thinks now, by careful watching, he may be able to pull through. Also the doctor who is always worn out by excess of business. He has to steal away and hide to get a night's sleep, and the doctor who makes frequent and rapid drives through town and into the country that he may catch the eye of the people and who, if asked who is sick out in a certain direction, remarks that his car was a little out of order and that he was just trying it out. Neat little tricks of deception and advertisement, but soon understood and laughed at by the laity.

If you think the people don't understand all these things, listen in on them. They do understand them, and it makes them skeptical regarding us, and every bottle of medicine they get from us.

Perhaps, by this time, you are of the opinion that I do not appreciate the profession as I should. That I do not respect it as it should be respected. You are mistaken. I do respect it for everything it stands for that is right and for the betterment of mankind; I look upon it as the one profession which, in point of service, overshadows all other professions. It is not yet, and never can be, a perfect science; but, nevertheless, medical science outranks all other sciences in true worth to humanity. French scientists and French engineers were unable to build the Panama Canal because of the tropical fevers which killed off all of their laborers; medical science in the person of Dr. C. Gorgas drove disease from the strip and made it possible for American engineers to build the canal. Yellow fever almost depopulated Havana, Cuba, every few years, until, as medical director of Cuba, General Wood forgot his military title and his political aspirations and as plain Dr. Wood, cleaned up Havana, built her hospitals and through the power vested in him by applied medical science, drove yellow fever from Cuba and made it a safe habitation for man.

I might go on and enumerate how doctor after doctor has gone into the tropics and there given up life in the struggle to banish the plagues of that region, and how they have succeeded until now it is safely habitable in almost every part, but what would be the use? You already know the record of the profession. With a proper knowledge of the great things the medical profession has accomplished and is accomplishing today, for humanity, it would seem that every doctor must pay it respect. And he should feel that he is honored by being a member of such a profession. He should feel inspired to give it honest and faithful service to the end, that men should in time come to look up to it with favor and be cured of the sting of disease.

ORGANIC CHEMISTRY AND MEDICINE

In his presidential address before the Congress of American Physicians and Surgeons at Washington last month, William J. Mayo(1) paid fitting tribute to the outstanding contributions of the pure sciences to the progress of medicine. The theme warrants reiteration, particularly at those periods when there is impatience at the rate of advancement and discovery in fields of scientific endeavor from which medicine has been accustomed to reap a harvest. Some have, indeed, expressed concern lest current devotion to pure science shall deprive medicine of the wisdom to gage the practical value of new knowledge and apply it carefully, which is the outstanding characteristic of a successful clinician. Dr. Mayo has taken his audience into what may previously have seemed to some as extreme byways rather than the commonly frequented paths of scientific achievement and endeavor; yet even the most hidden recesses are shown now and then to reveal something of unexpected practical value.

Amid the abundance of illustrations which Dr. Mayo offered, the merits of organic chemistry received rather scanty notice; this is emphasized the more because in the study of thyroxin the laboratories of the Mayo Clinic themselves have made one of the most brilliant contributions that the application of organic chemistry to physiology has furnished in recent years. A few years ago it was bacteriology that raised itself on a dominating pinnacle that overlooked the older sciences. More recently, the glamour of the newer developments of physical chemistry and often vague but enticing claims of colloid chemistry have been allowed to dim the important place occupied by organic chemistry in relation to medicine. This is characteristically reflected in Sinclair Lewis' interpretative novel "Arrowsmith," in which the eminent bacteriologist Professor Gottlieb, replying to the young medical student's appeal to be taken into the courses of the fictitious scientist on the plea of the young man's extensive preparation in organic chemistry, remarks:

> Organic chemistry! Puzzle chemistry! Drug-store chemistry! Physical chemistry is power, it is exactness, it is life. But organic chemistry — that is a trade for pot-washers.

The present-day enthusiasm for the phenomena of molecular surfaces and electric charges of ultramicroscopic particles, of ions, electrons and protons, should not be allowed to distort unduly the role that the organic chemist has filled and must continue to undertake in the furtherance of medicine. In the synthesis of new compounds, he has enriched therapy a hundredfold. Anodynes, anesthetics, antiseptics to fill an enormous number of specifications have been prepared by his magic, until in the brief span of half a century the pharmacopeia has been revolutionized. The discovery and identification of hormones and vitamins, of toxins and antibodies, depends on the skill of the organic chemist. And, about all, we must rely on his methods and his insight to disclose the subtle chemical processes that underlie and direct the manifestations of metabolism. No one has helped more than the organic chemist to bring life effectively within the range of scientific understanding and to make its processes in both health and disease more readily fathomed in their material relationships.—Jour. A. M. A., June 6, 1925.

1. Mayo, W. J.: Contributions of Pure Science to Progressive Medicine, J. A. M. A. 84:1466 (May 16) 1925.

DOES THE PANCREATIC HORMONE (INSULIN) LOWER THE BLOOD PRESSURE?

In the course of treatment of patients with diabetes mellitus, William Weinberger and Abraham Holzman, New York (Journal A. M. A., Oct. 18, 1924), made the following observations: 1. Under insulin administration, a number of diabetic patients with hypertension showed a diminution in blood pressure. 2. Some with a normal or low blood pressure exhibited a still further lowering. 3. The factor of blood sugar reduction is independent from the factor of blood pressure reduction, since many lowered blood pressure readings were obtained though the blood remained hyperglycemic on account of the diet being adjusted to that effect. Four cases are here cited. The capacity of insulin to reduce the blood pressure under certain conditions was also observed by Klemperer and Strisower, who obtained similar, though not identical, experimental results. The authors raise the question: Does not insulin, representing, as it does, the internal secretion of the pancreas (if there should be an etiologic relationship between it and the lower blood pressure observed), act in conformity with the hypothesis of an antagonistic action between the hormones of the pancreas and suprarenal glands? That the height of the blood pressure bears some relationship to the concentration in the circulating blood of the suprarenal hormones is now generally recognized. Therefore, the administration of insulin should have a tendency to lower the blood pressure, which should occur the more easily in conditions with hypofunction of the suprarenal glands, so that a syndrome analogous to Addison's may result.

Character is contagious. One can scarcely be weak, indolent, and selfish without having a contaminating effect upon others. And one who is faithful, straightforward, and earnest, influences the actions of those about him, whether he knows it or not.

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MEDICO-LEGAL DEFENSE COMMITTEE

Dr. A. S. v. Mansfelde, Ashland, Chairman	1927
Dr. Czar C. Johnson, Lincoln	1928
Dr. R. B. Adams, Lincoln, Secretary	1927

Note: In case of suit notify secretary at once.

A FEW POINTS ABOUT THE PNEUMONIAS OF RURAL NEBRASKA

The lobar pneumonias we see in rural Nebraska are generally of medium severity and barring complications, we always expect the patient to recover.

Typical cases of pneumonia are rather easy to diagnose: The flushed cheek, the bright eyes, the dilated nostrils, rapid catchy breathing, and temperature approximating 104 degrees is a symptom complex that most any layman can interpret.

A child found with a temperature of 102 or 102.5, tight irritable cough does not necessarily, indeed does not usually, have pneumonia, although some physicians call such cases, pneumonia. Such a child has a bronchitis and intestinal toxemia which clears up in about three days on the exhibition of broken doses of calomel and expectorants.

In chronic nephritis and in other profound constitutional conditions an insidious form of pneumonia comes on, not easily recognizable on the first or second visits. This is true of persons in middle life and is especially true of the aged.

Prof. Tyson said it is not safe to decide against a lobar pneumonia in the aged on the first visit because the symptoms are obscure and the physical signs absent. Pain is especially absent in so-called senile pneumonia, also cough and expectoration, and the pulse is apt to be rapid and feeble instead of full and strong.

Certain facts pertaining to the history of pneumonia are to be kept in mind: Cough is apt to be in proportion to the amount of bronchial involvement. The presence or absence of pain depends on the presence or absence of pleurisy. The fact that the affected portion is small and overlaid by healthy tissue accounts for the absence of physical signs, in some cases.

The grippe pneumonias are not always easily diagnosed on the first visit. An adult patient is seen with a temperature of 104, pulse 120, stuffy rapid breathing, cough, flushed face, head-ache, bone-ache all over. He may be developing pneumonia; but he is just as likely having an attack of simple but severe grippe and a second visit 12 to 24 hours later will be needed to determine.

The writer recently saw three cases of pneumonia in growing boys who on the first visit complained mostly of pain in the right inguinal region. This is an experience sufficiently startling to mention. In the first one, a 12 year old boy, the symptom disappeared on repeated irrigation of the bowels; in the second one, 16 years old, the pain persisted to the fourth day when the pneumonia became more pronounced (it was right sided), and in the last one a 12 year old, pronounced rigidity on the right side over the appendiceal region persisted until the pneumonia came to the crisis. In all three of these cases the initial temperature was above 104—in one 104 4-5. The symptoms noted would seem to bear out the belief entertained by some that the influenza bacillus is to blame for some cases of appendicitis occurring at the same time or closely following cases of grippe and other grippal complications. Right-sided pleurisy, because of the distribution over the lower abdomen of the lower intercostal nerves, explains most cases.

"ARE YOU RATTLING UP OR SHAKING DOWN?"

The answer to the heading of this article is represented by your status as a professional man. By keeping up your membership and interest in the Nebraska State Medical Association you substantiate your belief in organized Medicine and your confidence in your professional brethren with all that that fellowship implies. You need that fellowship more than you may think you do. You may think you are sufficient unto yourself, but you are mistaken. All men, most of all, physicians, need the fellowship and counsel of their kind. The physician outside of a medical society is like the man without a country.

Breathes there a man with soul so dead,
Who never to himself hath said,
This is my own,——?"

A family is an organization and a medical organization is a family of physicians.

A lapsed or non-member is shaking down—dead or dying refuse of the profession.

Are you rattling up or shaking down?

CALL FOR PAPERS AND DUES

The program for the Annual Meeting May 11, 12 and 13, 1926, at Omaha will be closed by April 1, 1926, consequently any doctor wishing to read a paper at this meeting should send in name and title at once. Send medical titles to Dr. Geo. Covey, First National Bank Bldg., Lincoln, Nebraska, and surgical titles to Dr. Max Emmert, Aquila Court, Omaha, Nebraska.

Due to a rule of The American Medical Association all members of the Nebraska State Medical Association who have not paid their dues by April 1, 1926 will be reported delinquent. This means that you will lose your Journal and your rights under the Defense Fund during the time that you are delinquent. Send $8.00 plus your local society dues to your secretary at once.

—R. B. Adams, Sec.-Treas.

NEWER SYSTEMS FOR HANDLING PAUPER PRACTICE

At least two county medical societies in Nebraska have undertaken to handle in orderly and effective manner the medical and surgical care of those who are public charges in the respective counties and with a considerable saving to the counties. These plans are worth passing notice; perhaps careful study.

The Platte County System consists essentially of a reduced scale of fees for pauper cases, as follows:

Office calls (including medicines and bandages used)	$ 1.50
Visits to homes	2.00
Night calls	4.00
Mileage on rural calls	1.00
Surgical fee in major operations (no extra charges for anaesthetics or assistants)	75.00
Minor operation	$5.00 to 25.00
Fractures, simple	$10.00 to 50.00
Compound fractures, 25% additional.	
Tonsillectomy	20.00
Obstetrics	15.00

The county health officer to be paid for such services as he may render in accordance with the approved scale, rather than a flat salary as heretofore.

The Dodge County plan is for the county society to undertake to give professional care to all needy for the sum of $1,000 to be paid to the Dodge County Medical society; the secretary of the society to be county health officer and to arrange for the medical or surgical attention.

The astonishing part follows: The physicians are to donate their services and the $1,000 paid by the county into the treasury of the Dodge county medical society is to be used to promote public health work. The argument is that the benefits from such a procedure would be wide in scope and constructive and beneficial to the public. The saving to the county would be about one-half.

Both plans seem workable and merit success.

PERIODIC HEALTH EXAMINATIONS

For several years the American Medical Association has been fostering an educational campaign to teach the necessity of regular health examination at stated intervals. A committee has been working whose plan has been accepted and the A. M. A. is about ready to launch its campaign. This plan gives a rule as to how often a person should be examined. This varies according to the individual. A manual has been printed which describes the type of examination considered sufficient, and a form for the directions for conduct of the examinations and many useful suggestions for advice to the person examined. For this to be successful, of course, depends on the doctors of each community and the A. M. A. urges all doctors to begin talking and urging such an examination to everyone. One suggestion is for the doctors to examine each other and thus begin the necessary publicity. The slogan adopted for use at present is "Be examined on your Birthday."

The examination manual can be obtained from the A. M. A. for twenty cents a copy, cheaper in quantities. Some State Associations are furnishing this manual to members free, and it is hoped that our House of Delegates will appropriate the necessary money at the next meeting.

—R. B. Adams.

WHAT SHALL WE DO TO BE SAVED?

The Federal Government now treats at the taxpayers' expense persons suffering from disease and injury unrelated to any service rendered the people. To do this, it even transports them, if necessary, from their homes and usual medical attendants to more or less remote government hospitals and salaried medical officers.

Bills are now pending to increase the number of possible beneficiaries of this government bounty and to extend the bounty so as to make it include out-patient as well as hospital treatment.

Unless your state association desires the enactment of such legislation, it should immediately protest against it, to every member of your Congressional delegation. Your several county societies should send protests to the senators and representatives from their respective jurisdictions. And finally, representative physicians and others should write to the senators and representatives with whom they may be acquainted, urging that there be no extension of the medical gratuities already granted. In fact, to carry out the resolution of the House of Delegates set forth in the accompanying reprint, it will be well to protest even against the continuance of the gratuities now bestowed.

To facilitate action, a letter of identical tenor is being sent to both the president and the secretary of your society.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY—(TRIOLOGICAL SOCIETY)—MIDWEST SECTION ANNUAL MEETING

The annual meeting of the above society was held Thursday, February 11, at the Fontenelle Hotel, Omaha, Nebr. The program was of highly scientific interest, and among the distinguished guests taking part in the program and discussion, were Drs. Gordon B. New of Rochester, Minn.; T. E. Carmody, W. C. Bane, H. L. Baum of Denver, Colo.; F. R. Spencer of Boulder, Colo.; D. A. Vanderhoof of Colorado Springs, Colo.; H. L. Pollock of Chicago, Ill.; C. J. Spratt of Minneapolis, Minn.; J. J. Shea of Memphis, Tenn.; A. J. Lorie of Kansas City, Mo.; J. B. Gregg of Sioux Falls, So. Dakota; G. F. Harkness of Davenport, Iowa; and F. W. Dean of Council Bluffs, Ia. The Nebraska men, having places on the program were: Drs. W. F. Callfas, Claude T. Uren, W. P. Wherry, H. B. Lemere, A. F. Tyler, J. M. Banister and A. S. Rubnitz, of Omaha; J. J. Hompes, F. F. Teal of Lincoln and J. C. Tucker of Beatrice.

The meeting was preceded by a clinical congress of eye, ear, nose and throat men, from the Missouri valley, which took place the day before, with a joint banquet, Wednesday evening.

—H. B. Lemere.

REPRINT PRICES EXPLAINED

Recently an author sent us a comparison in prices for reprints of articles appearing in The Nebraska State Medical Journal with those of the Journal of the American Medical Association, which would cause anyone at first glance to think our charges rather high. Upon investigation it is found that the price lists are based on the number of pages in the reprints. However, there is a great difference in the size of pages.

The type matter on the page of a reprint of the American Medical Journal is 6½ in. in length, while The Nebraska State Medical Journal reprints are exact page size and contain 18 in. of type matter to the page, almost three times as much.

All articles in the Nebraska Journal are made full size upon the recommendations made to us several years ago, on account of convenience in filing, being about the same size as a full sized letter head and fit in standard filing cabinets.

As a comparison let us take the price on 250 reprints, four page size without cover.

Their price, $6.25. Our price, $8.75.

Their type matter, 26 inches. Our type matter, 72 inches.

To reprint an article of 72 inches at their rate would make a reprint of twelve pages, of which 250 would cost $11.75, or $3.00 more than our rate for 250 reprints containing the same amount of type matter.

—The Publishers

EDITORIAL PARAGRAPHS

Fix in your mind the date of the American Medical Association meeting at Dallas, Texas, April 19-23.

The Nebraska State Medical Journal has given an order for a new "dress" and hopes to have it in time for Easter.

County secretary-treasurers should send in reports early and often to give new members the benefit of the Journal promptly.

The urticaria of infants when of alimentary origin can generally be traced to the ingestion of milk, eggs, or chocolate.

Remember the date and place of the annual meeting of the Nebraska State Medical Association—May 11, 12, 13, Omaha.

The number of physicians in congress (Journal A. M. A.) is five in the House of Representatives and one in the Senate.

The first state medical association was that of New Jersey, organized in 1766. The American Medical Association was organized in 1847.

Another unfortunate has appeared in the southern part of the state who would like to collect $75,000 damage from a physician by the malpractice route. The reports of the wealth of members of the medical profession must be much exaggerated!

The medical school of Emory University, formerly the Atlanta Medical College, is to have an endowment fund of $4,500,000 if plans underway mature. The school is looking to those living, of 3,400 alumni and other friends of education, to give the funds so urgently needed for expansion.

The Physicians' Fellowship Club of Chicago, (Logan Square Masonic Temple, 2451 Kedzie Blvd. Meetings every Friday evening) was organized to promote good fellowship and real human interest among physicians and in the hope of solving some of the problems of the profession. Physicians visiting in Chicago are invited to attend these meetings.

Instead of continually looking for the newer things in materia medica and therapeutics, it might be well to look to some of the older and simpler remedies, as for instance paregoric, which is really a wonderful remedy in its place, and has more than one indication. When a struggling young practitioner, the writer made an enduring reputation by administering paregoric to a civil war veteran developing broncho-pleuropneumonia, because it relieved the cough and to a slight degree the pleuritic stitch.

The president of the Wisconsin State Medical Society, Dr. Joseph F. Smith, in a message to the profession says: "The State Medical Society consists of yourself and other fellows more or less like you. Each member has certain individual or peculiar points of contact which connect him with the organization, but each and all have certain definite interests in common to which the state society gives form and expression. The State Medical Society is the only organization which can bring together all the interests of its individual members and furnish a point of contact between members of the medical profession and the public it seeks to serve."

OUR DOCTOR

"Sleet and a cold winter rain combine to make it one of the most disagreeable nights of the year. It is near midnight and the storm has been raging until the roads resemble long canals of mud. All the world seems buried under a sea of slush.

"Everyone with any respect for his comfort is well protected between blankets and quilts, and our country doctor, after a trying afternoon and evening, is about ready to call it a day and retire.

But no! The telephone at the head of the bed rings, and the doctor wearily reaches for it, knowing full well what it will mean. John Smith's wife, ten miles from the city, has been critically stricken.

No excuses, no postponement, no alibis will do. Without complaint our doctor gets his car out and begins his long disagreeable battle against mud and cold.

Talk about heroism, public service doing for your brother man? "Nothing at all but professional duty," says the doctor. "I get my fee; it is my business. Nothing more".

But incidentally he has given up his night's rest. He has brought himself to a point of exhaustion, and he has saved the life of Mrs. John Smith, so that she can continue to care for her little children and keep the hearthstone circle complete.

And still, people think that all the great achievements of the medical profession come from city hospitals and laboratories of nationally known specialists".

THE "MIDDLE MAN" IN MEDICINE IN ACTION

"There may be a few Indiana doctors 'who are connected with health institutes and who make health examinations of persons who have applied to the institute for such service and the reports of which are passed on to the institute for analysis before results of the examination are reported to the patient who pays handsomely for the advice. Just why any physician should consent to be a go-between is hard to explain, but the worst feature of the business is that the patient is being imposed upon, and the doctor who makes the examination is contributing to the success of a commercial enterprise that does not deserve recognition at the hands of ethical medical men. Periodical health examinations are becoming justly popular, but if they are going to fulfill their purpose they must be controlled by the medical profession, and any suggestions or advice given the patient should come from the physician making the examination and not in a round-about way through a commercial agency."—Journal Indiana Medical Association.

DO IT NOW!

A little more kindness and a little less creed,
A little more giving and a little less greed;
A little more smile and a little less frown,
A little less kicking a man when he's down.
A little more we and a little less I,
A little more laugh and a little less cry,
A little more flowers on the pathway of life,
And fewer on graves at the end of the strife.
—Selected.

THE CHILD OF PRE-SCHOOL AGE

The American Medical Association has expressed its approval of a National Campaign for the help and well-being of the child about to enter school. The Nebraska-Parent-Teacher Association and State Child Hygiene Division are working together in Nebraska to this end.

May we ask your co-operation and that of the local physicians in your community in this work?

The many defects always found in early school life may thus be discovered early, and corrections made before the child enters school. The parents of the child with defects will be referred to their family physician for these corrections.

Miss Elsie Witchen, R. N., from the Federal Children's Bureau, and Miss Louise M. Murphy, R. N,, Director of State Division of Child Hygiene, will be available to assist in several communities in the organization and conduct of this work.

Address: State Bureau of Health, Division Child Hygiene, State House, Lincoln, Nebraska.

JOINT COMMITTEE MATERNAL WELFARE

American Associations of Obstetricians, Gynecologists and Abdominal Surgeons: Dr. Henry Schwarz, Dr. George W. Kosmak, Dr. George C. Mosher.

American Gynecological Society: Dr. W. C. Danforth, Dr. Frank W. Lynch, Dr. Fred L. Adair.

American Child Health Association: Dr. Robert L. DeNormandie, Dr. Ralph W. Lobenstine.

State Leaders: Illinois, Dr. Joseph L. Baer; Iowa, Dr. Floyd Rice; Nebraska, Dr. Earl C. Sage; Wisconsin, Dr. Carl Henry Davis.

To the Secretaries of County Medical Societies:
Gentlemen:

The Joint Committe on Maternal Welfare again asks your cooperation. This country still loses each year nearly 20,000 women, nearly all of whom are young, from the complications of pregnancy and the accidents of labor. Probably 85% of these deaths are preventable. For this prevention great obstetric skill and judgment is not always needed. In most cases simple prenatal care, careful asepsis and a reasonable knowledge of obstetrics would suffice. It is the mission of this committee to try to decrease this mortality. Will you please help us by including in the programs of your Society papers on prenatal care, the management of common obstetric problems? In most instances these may be provided by your own members. The appalling number of lives which still are lost from eclampsia and sepsis prove that too many men are not thinking about these things.

We have in each state a state leader. The leader for your state is indicated upon this sheet. He will be glad, when he can, to help you secure some one to discuss these matters before your Society. He is limited by the number of men he can obtain who can serve as speakers and by lack of funds, but will do what he can.

We shall appreciate your help in this matter greatly.

Very truly yours,
W. C. Danforth, Evanston, Ill.

MATERNAL MORTALITY IN OMAHA

Maternal mortality in the city of Omaha is decreasing, as the following table will show:

Year	Total No. of Deliveries	Total No. of Maternal Deaths, Ages 15-47	Material Death Rate per 1000 Deliveries
1921	5044	326	8.7
1922	4819	375	8.9

1923	4874	355	6.7
1924	5415	319	3.1
1925	4994	361	7.2

A listing of the causes of death in this series is as follows:

Cause	1921	1922	1923	1924	1925
1.*Puerperal group	44	42	33	17	36
2. Tuberculosis	40	43	40	38	62
3. Cardiac disease	33	43	45	60	54
4. Peritonitis	29		27		
5. Cancer	24	27	27	26	29
6. Operation & shock	24	28	30	23	42
7. Pneumonia		36			
8. Brain tumor		31			
9. Pulmonary disease			36	27	32
10. Accidents					32
Total No. Deaths from All Causes	326	375	355	319	319

*George T. Palmer, Director of Research for Child Health Association, wrote that the puerperal death rate per 1000 live births in the Birth Registration Area of the United States in 1923, was 6.7 per 1000 deliveries. The lowest rate was for Utah in 1923; namely 5; and the highest rate 15.4 for the colored in Kentucky. Consideration of this death rate in other cities in 1920-1922 will show that Omaha's average compares favorably with the following:

1.	St. Louis	3.8 per 1000
2.	Kansas City	7.3 per 1000
3.	Boston	7.7 per 1000
4.	San Francisco	6.1 per 1000

—Earl C. Sage, M. D.

MATERNAL MORTALITY IN GENERAL

Preliminary figures indicate a total death rate for the United States for the calendar year 1924 of about 11.9 per 1000 as compared with 12.4 in 1923, with 17.6 in the registration areas in 1900 and with 19.8 in 1880.

Birth rates in 25 states show an increase from 22.3 per thousand population in 1923 to 22.5 in 1924. The rates varied from 31.6 in North Carolina to 16.1 in Montana.

While infant mortality has shown an appreciable decrease, the number of deaths of mothers incident to child-birth has shown but little change in the last nine years for which data is available. During the period from 1915 to 1922 inclusive, it is estimated that for every 100,000 babies that were born, the lives of from 600 to 900 mothers were sacrificed. About one-third of these deaths were caused by infection of the mother at childbirth, often the result of carelessness on the part of the attendant. This rate per 1000 births would be 6-9.

(Health news from the United States Public Health Service. B-47).

This country still loses each year nearly 20,000 women, nearly all of whom are young, from the complications of pregnancy and the accidents of labor. Probably 85% of these deaths are preventable. For this prevention great obstetrical skill and judgement is not always needed. In most cases simple prenatal care, careful asepsis and a reasonable knowledge of obstetrics would suffice. It is the mission of the Joint Committee of Maternal Welfare to try to decrease this mortality.

A CORRECTION

Editor, Nebraska State Medical Journal:

In my letter published in the January Journal, I was mistaken as to federal employees not being required to pay income tax. Under the Revenue Act of 1924 they are required to pay income tax. This, however, does not apply to the state employees.

Yours sincerely,
J. B. Potts.

12TH ANNUAL MEETING OF MEDICAL WOMEN'S NATIONAL ASSOCIATION

The Twelfth Annual Meeting of the Medical Women's National Association will take place April 18-19, at Dallas, Texas, in conjunction with the American Medical Asosciation meeting.

The headquarters of the M. W. N. A. are the Hotel Baker. Dr. May Agness Hopkins, Medical Arts Bldg., Dallas, Texas, is the Chairman of the Committee on Arrangements.

Women intending to go to this meeting should promptly make reservations either through Dr. Hopkins or directly at the Baker Hotel, as there will be a big crowd there. Hotel rates are reasonable, a double room with bath averaging $6.

The terms for railroad transportation should be looked up in the A. M. A. Journal, but in many places where there are large numbers of members of the Medical Women's National Association, special cars for the women may be run.

Medical Women passing through New Orleans are specially invited to stop over there and will meet with a cordial welcome from the New Orleans medical women, represented by Dr. Elizabeth Bass, 3513 Prytania St., who is President of the Women Physicians of the Southern Medical Association.

The Texas women, cooperating with the chairman, Dr. Hopkins, are making most attractive arrangements for the meeting. All medical women, whether members of the M. W. N. A. or not, are most cordially invited to participate in this meeting.

12th Annual Meeting, Medical Women's National Association, Dallas, Texas, April 18-19.

MEDICAL STUDY TOUR TO EUROPE

The Travel Study Club of American Physicians, founded at the London International Medical Congress of 1913, is announcing plans for its 1926 Study Tour. Sailing from New York on June 12th, the party will visit clinics and medical institutions in the medical centers of Oslo (Christiania), Stockholm, Copenhagen, (optional to Berlin and Munich), Cologne, Heidelberg, Strasbourg, Berne, Zurich, Leysin, Geneva, Paris and London, returning on August 8th. Dr. Louis L. Seaman of New York is President, Drs. Fred H. Albee of New York, Edward B. Heckel of Pittsburgh, John P. Lord of Omaha, vice presidents. Physicians in good standing, to the limit of fifty, are invited to participate in this tour, and the secretary, Dr. Richard Kovacs, 223 East 68th Street, New York City, will supply any further information desired.

STRANGE AND STARTLING SIGNS PICKED UP ON THE OVER-SEAS JAUNT

"Pluto will if nature won't", was painted on a billboard we saw.

"Ramogland makes life worth while", says a drug store poster.

A warning sign in the English lake region: "Motorists please hoot; carriage drive to the left".

In the Shakespeare Country: "Livery and Bait Stable".

Sign in an Edinburgh shop window: "Trousseaux and Layettes".

Shop window signs in Great Britain: "Funeral Office", "Fruiterers", "Flesheries Department", "Motoralities", "Spirit Merchant", "Manure Factory".

THE SOCIETIES

Regular meeting of the **Omaha-Douglas County Medical Society**, January 12, 1926.

The president, Dr. Adolph Sachs, outlined some of the problems the society should be interested in this year. First, increased attendance; second, fostering the spirit of comradship; third, by having certain public meetings.

Dr. William N. Anderson, chairman of the program committee, gave a perspective of what the society should work toward and accomplish over a period of years, asking for suggestions from the membership. He suggested that the society was not doing enough for the public health of Omaha. Dr. Ernest Kelly suggested a series of medical debates be held, with the qualification that no decision be rendered.

Dr. Wohl presented specimens and the history of a case of rheumatism with streptococcic endocarditis and hemolytic pericarditis. This patient also had a horse-shoe kidney. Dr. Edwin Davis then gave a short resume of this anomaly:

The horse-shoe kidney, as statistics show, occurs in about one patient in every 700 of normal individuals. Of pathological kidneys, however, the percentage will run considerably higher, showing these kidneys are predisposed to disease. We see bi-furcated or double ureters; anomalies of the blood vessels. They have made us considerable trouble through the unexpected severing of the arteries entering the lower border. We also see ectopic or displaced kidneys. A congenital cystic kidney is almost always bilateral; and last but not least, we see the infantile kidney, the undeveloped kidney on one side, which is a source of danger because we may undertake a surgical operation on the other side without verifying the opposite. I happen to have one of these horse-shoe kidneys in the hospital now.

The regular scientific program then began with a paper by Dr. C. S. Ulrich on "Digitalis, a Study of Its Therapeutic Limitations in Heart Failure". Discussion of this paper was opened by Dr. Bliss and Dr. Anderson. The second paper was a "Review of Acute Intestinal Obstructions with Consideration of Its Treatment", by Robt. F. Farrell, M. D. The discussion of this paper was opened by Dr. E. C. Henry. Others participating were Dr. A. D. Dunn and Dr. A. F. Jonas.

Dutch lunch served immediately following the meeting.

Regular meeting, January 26:

The names of Drs. W. B. Moody, George M. Hansen, and R. S. Russell as new members were voted on and unanimously accepted as members.

Dr. Sage presented lantern slides giving tables of Materanl Mortality Statistics in the City of Omaha over the last five years.

It was announced that Dr. Davidson of the Henry Ford Hospital, Detroit, Michigan, would address the next meeting on the subject of "The Management of Burns".

Dr. H. v. W. Schulte read a paper on "The Physician and the Community".

The discussion was opened by Dr. J. E. Summers. Others taking part in the discussion were Drs. G. A. Young, W. E. Powell, and W. N. Anderson.

Dr. Anderson moved that committees be appointed to study the problems outlined in Dr. von Schulte's paper and Dr. Sachs appointed committees to study:

1. City and County Medical Affairs.
2. Preventive and Social Medicine.

Dr. John T. Summers was appointed chairman of this committee, the other two members being Dr. Claude Uren and Dr. Floyd Clarke.

—Earl C. Sage, Sec'y-Treas.

The regular meeting of the **Lancaster County Medical Society** was held January 5, 1926, at the Orthopedic Hospital. Meeting opened at 7:30 P. M. Dr. F. F. Teal in the chair.

In a call for clinical cases, Dr. A. L. Smith presented a series of cardiographs on the screen explaining the interpretation of heart block.

The symposium of the evening was given over to toxic goiter. Dr. Clarence Emerson presented the subject of toxic goiter from a surgical aspect. He dealt with the surgical aspects of goiter and stressed the importance of basing the treatment on the pathology present in the particular case under consideration.

Marines' classification of goiter was shown on a chart and the indications for surgical treatment pointed out with reference to the pathologic histology.

Summarized the surgical indications are:

1. Deforming goiters for cosmetic reasons or because of pressure symptoms.
2. All toxic goiters unrelieved by reasonable trial of medical management should be removed before serious parenchymatous change has developed in other organs.
3. All tumorous goiters offer positive surgical indications.
4. Ligneous goiter demands operative operation.
5. Toxemia supervening in long standing goiter requires surgery.
6. Operation is contraindicated if the metabolic rate is on the up-grade.
7. Operation should not be done in the period of physiologic enlargement nor in the young until medical or x-ray management fails to cure.

Dr. Emerson presented a moving picture illustrating a non-compression technic for thyroidectomy to prevent post operative toxemia.

The second paper of the evening was the Roentgen Aspects of Toxic Goiter, presented by Dr. Edward W. Rowe.

The subject of toxic goiter is a well chosen subject for the conference, since three broad methods of treatment, medical, surgical and radiological, may justly claim, under proper conditions, to influence the course of the disease. Each method has its limitations. The chief interest should be given toward the good which may be done to the individual suffering from this abnormal condition. The diagnosis must be carefully and definitely made before any form of treatment is instituted.

No other research in modern medicine has caused more widespread interest and advancement.

Clinical observation and the records of basal metabolism rates indicate that properly selected cases are as rationally treated by roentgen ray as by surgery. The general management of patients is as important in roentgen treatment as in the medical or surgical modes of therapy. Adenomas with toxicity yield more readily to surgery, but often give brilliant results under roentgen treatment. Exophthalmic goiter shows best results of all types. If the roentgen treatment is faithfully carried out it seldom requires surgery, while the results are just as permanent. There is no mortality, no fear of operation, and no defacing scar on the neck. The treatment of toxic goiter is major roentgen therapy and demands conscientious and trained service. The constant check of metabolimeter is an aid to diagnosis and treatment. It visualizes the progress. Roentgen therapy appeals as a rational mode of treatment because it is safe, economizes the time of the patient and often permits return to occupation during treatment which is important to a bread winner. An ignorant patient, or one who will not cooperate, or one who lives at a distance from a competent roentgenologist, had better be sent to the surgeon or treated in some other manner.

Dr. A. W. Bryan took up toxic goiter from the medical phase.

The clinics at Berne (Kocher), Rochester (Mayos), Cleveland (Crile), have brought in the last two decades an advance in our knowledge of this subject greater than occurred in previous centuries. A summary of thyroxin effects was given. Three clear-cut physiologic changes are associated with anatomic changes in the thyroid, 1. Pure hyperthyroidism, 2. Pure hypothyroidism, 3. Exophthalmic goiter. Exophthalmic goiter or Graves' syndrome was sharply contrasted clinically with adenomatous goitre with hyperthyroidism; recognition of this distinction is highly important to proper diagnosis, prognosis, and treatment. Certain advantages of "open circuit" basal metabolic apparatus in comparison with that of the "closed circuit" type were mentioned. The necessity of giving hyperthyroid cases very high caloric diets for maintenance was mentioned. The history of the use of iodine in goitre was summarized and the recent Mayo Clinic experience with Lugol's solution was described. The highly satisfactory effects produced by its use in exophthalmic goiter more especially in cases in "crises" as well as the danger of exciting hyperthyroid symptoms by its use in cases of adenoma without hyperthyroidism was emphasized.

In the discussion of the symposium, Dr. Hohlen reviewed E. H. Ochsner's study in the treatment of toxic goiter cases. Where Ochsner was formerly operating a great per cent of these cases, he has at the present time completely reversed his procedure and operates on probably not more than two per cent. He handles these cases almost entirely by the injection of a five per cent phenol solution directly into the goiter mass, with the exception of malignant and calcified glands.

Dr. A. L. Smith was of the opinion that medicinal measures were not sufficiently and energetically enough instituted in most of these cases. He further cited that an increased metabolic rate in any given case does not necessarily mean a toxic goiter, but that there are many other constitutional disturbances which will present the same factor from the standpoint of metabolism. Dr. Smith interposed a sharp denunciation of the attempted use of the electrocardiograph as a possible diagnostic adjunct from the standpoint of the heart in these toxic goiter cases. He felt that any desire to enlarge the field of usefulness of the electrocardiograph, beyond the already accepted stereotyped uses of the machine, was a malignant procedure. The psychic control of the toxic goiter case is of vast importance. Lugol's solution will materially reduce the metabolic rate.

Dr. Sanderson cited Fletcher's experience in a series of reported cases by the injection of tincture of iodine.

The essayists of the evening, in closing, respectively paid tribute to the other forms of treatment and generally conceded that no one accepted procedure can be instituted as specific to the exclusion of an interrelation with other procedures.

—Arbor D. Munger, Secretary.

The midwinter meeting of the **Elkhorn Valley Medical Society** was held at Fremont, February 10, about fifty physicians being present. The program was an unusually good one and brought out lively discussion. Two papers were read and discussed before luncheon. The luncheon was a feast. Dr. Palmer Findley, Omaha, gave his superb, illustrated lecture on abortion; Dr. S. O. Reese, Lincoln, outlined the present day treatment of pneumothorax; Dr. S. G. Zemer, Lincoln, in a very practical paper stressed focal infections of nasal origin advancing the proposition of nasal sinus infection carriers and also stated that the recurrence of adenoids in the presence of sinus infections is possible; Dr. J. J. Keegan, Omaha, dean of the University of Nebraska College of Medicine, gave a classical paper on head injuries which brought out much discussion; Dr. Clyde Moore, Omaha, discussed rheumatic heart conditions in children in an able and forceful manner, and Dr. W. N. Anderson, Omaha, discussed degenerative heart disturbances.

The concensus of opinion was that the scientific work of and the interest in the meeting was much above the average.

It was decided to hold but one meeting annually hereafter and not to hold anymore joint meetings with the. Fourth Councilor district for the present.

Dr. E. W. Powell, Omaha, was elected president, Dr. H. D. Myers, Howells, and Dr. K. S. J. Hohlen, Lincoln, vice presidents, and Dr. A. C. Barry, Norfolk, was reelected secretary-treasurer.

The semi-annual meeting of the **Ninth Councilor District Medical Society** was held at Grand Island, February 16, under the presidency of Dr. Frank Nicholson, St. Paul. Following was the program:

"Cancer of the Uterus", Dr. R. T. Jones, Kearney; "Gall Bladder Diagnosis", Dr. E. C. Woodruff, Grand Island; "Pneumonia in Adults", Dr. J. W. Laughlin, Elmcreek; "Cholecystotomy vs. Cholecystectomy", Dr. E. A. Watson, Grand Island; "Classification of Goitre with Special Reference to Iodine Therapy", Dr. W. J. Arrasmith, Grand Island; "Pyelitis in Infants", Dr. J. V. Reily, Grand Island; "Acute Pelvic Infections", Lantern Slide Demonstrations, Dr. Palmer Findley, Omaha.

HUMAN INTEREST TALES

Dr. J. R. Thompson has moved from Elba to Primrose.

Dr. O. S. O'Neill, has moved from West Point to Jansen.

Dr. Frederick Fouts, Central City, has gone east for postgraduate study.

Dr. and Mrs. C. C. Gafford, Wymore, are on a trip to California and Honolulu.

Dr. E. T. Manning was elected president of the University club, Omaha, recently.

It is understood that Dr. P. J. Flynn, Plattsmouth, has retired on account of ill health.

Dr. and Mrs. Karl Connell, former Omahans, are spending the winter in the Bahamas.

Dr. George L. Dewey, for many years at Primrose, has located at Cedar Rapids, Nebr.

Dr. F. D. Burgess, Cedar Rapids, has taken a position in the Hastings State Hospital, at Ingleside.

A strictly modern fireproof addition to St. Joseph's hospital, Alliance, has recently been dedicated.

Dr. H. R. Elston, for several years in practice at Creston, has become associated with Dr. A. Cauley, at Humphrey.

Dr. J. M. Patton, Omaha, spoke on "The Specialist" before the premedical society of the University, January 14th.

Dr. E. F. Carr, Stapleton, answered an emergency call to Tryon by airplane, recently. "Eventually, why not now?"

Dr. E. G. Dovey, practitioner at North Platte for several years has located at Plattsmouth, his boyhood home town.

Several hundred thousand dollars is to be spent for an additional wing to the Methodist hospital, Omaha, this spring.

A press clipping on hand contains laudation of a doctor in a little village up the Elkhorn that would make most of us blush.

Dr. Arthur L. Smith, Lincoln, attended the annual meeting of the American College of Physicians, Detroit, February 22-28.

Dr. Arthur L. Smith, Lincoln, was elected vice president of the American Cardiological society at New York City, January 12th.

Drs. J. E. Summers and Floyd Clarke, Omaha, presented papers before the Sioux Valley Medical society at Sioux City, January 19th.

Reports coming through "static" indicate that Dr. Lucien Stark who left Hartington for Florida some time ago, has located at Ashville, N. C.

Dr. L. W. Elwood, formerly of the U. S. Veterans Bureau, Omaha, has located at Fairfield, as successor to Dr. G. H. Bentz now of Kearney.

Dr. Delmer L. Davis, former Omaha surgeon, was named chairman of the Physicians' Bureau of the Hollywood (Calif.) Chamber of Commerce recently.

A half-tone portrait of Dr. A. P. Overgaard, as president of the Omaha Auto Club, appears in the initial number of the new "Omaha's Own Magazine."

Fire, said to have originated from the explosion of a can of ether, did considerable damage in the offices of Drs. Wanek and Amick, Loup City, January 16th.

Dr. B. G. Bailey, who recently disposed of his interests at Wauneta after many years of practice in that community, will establish a home in the state of Washington.

Dr. Ora Caldwell, peripatetic almighty-dollar specialist before the public welfare department on a charge involving her right to practice medicine, had the license revoked.

Dr. W. L. Shearer, Omaha, gave a talk, illustrated with lantern slides before the medical and dental professions of Kearney, January 18th, on focal infections of the mouth.

The Women's Auxiliary Nebraska State Medical Association has 100 doctor's wives pledged to membership. Pawnee County has organized a Women's Auxiliary County Medical society.

Dr. John F. Allen, Omaha, director from Nebraska for the National Tuberculosis association, attended the semi-annual meeting of that body at the New York Academy of Medicine January 23.

Dr. G. H. Bentz, formerly of Fairfield and Dr. R. T. Jones, formerly of Edgar, have formed a partnership and have located at Kearney, for the practice of surgery and gynecology. Dr. Jones has recently spent four months at the clinics of Vienna.

NECROLOGY

Edwin W. Martin, Fremont, Nebr.; Cincinnati College of Medicine and Surgery, 1881; a native of Kentucky where he practiced for several years following his graduation, but since 1886 in practice at Fremont; member, Nebraska State Medical Association and some time president, Dodge County Medical society; died after a long illness January 27, 1926, aged 80 years.

J. M. Davey, Ponca, Nebr.; Sioux City College of Medicine, 1905; a well known physician and surgeon of northeast Nebraska; a practitioner at Sioux City for eight years, but for the past twelve years at Ponca; an officer of the medical corps during the world war; died in a Sioux City hospital of pneumonia, aged 43 years.

BOOKS RECEIVED

METHODS AND PROBLEMS OF MEDICAL EDUCATION, Third Series. 8 mo. Paper. 242 pages with illustrations. Division of Medical Education. The Rockefeller Foundation, 61 Broadway, New York. 1925.

Medical Record Visiting List 1926—William & Wood Company.

DEVELOPMENT OF OUR KNOWLEDGE OF TUBERCULOSIS. Lawrence Flick, M. D., LL. D. 14 mo. 783 pages. Cloth. Price $7.50. The Press of Wickersham Printing Co., Lancaster, Pa. 1925.

THE HEALTH-CARE OF THE BABY. Louis Fischer, M. D. Cloth. 12 Mo. 267 pages with illustrations. $1.00 net. Funk & Wagnalls Co., N. Y. & London. 1925.

INTRAVENOUS THERAPY. Walton Forest Dutton, M. D. 8 Mo. Cloth. 594 pages with 64 half tones and line engravings. Some in color. $6.00 net. F. A. Davis Co., Philadelphia, Pa. Sept. 1925.

THERAPY OF PUERPERAL FEVER—Koehler & Ehrenfest. 8 Mo. 276 pages with illustrations. Cloth. $4.00. C. V. Mosby Co., St. Louis, 1925.

MEDICAL EDUCATION—Abraham Flexner. 8 Mo. 334 pages. Cloth. The Macmillan Co., N. Y. 1925.

PHYSIOLOGICAL CHEMISTRY—C. J. V. Pettibone, M. D. 8 Mo. 404 pages. Cloth. $3.25. C. V. Mosby Co., St. Louis, 1925.

AN INTRODUCTION TO OBJECTIVE PSYCHOPATHOLOGY—G. V. Hamilton, M. D. 8 Mo. 354 pages. Cloth. $5.00. C. V. Mosby Co., St. Louis. 1925.

TEXTBOOK OF PHYSIOLOGY—Wm. D. Zoethout, Ph. D. 8 Mo. 616 pages. Cloth. $4.50. C. V. Mosby Co., St. Louis. 1925.

ANNUAL MEETING, OMAHA, MAY 11, 12, 13, 1926

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THE CLASSIFICATION OF THE GLYCOSURIAS WITH PARTICULAR REFERENCE TO PROGNOSIS AND TREATMENT

FRANK CONLIN, M. D., OMAHA, NEBR. (FROM DEPARTMENT OF MEDICINE, UNIVERSITY OF NEBRASKA)

Great interest has been shown in the subject of glycosuria, in the last ten years, more particularly since the discovery of Insulin. As a result of this interest, urine examinations are made more frequently, more cases of diabetes are being found, and the innocent glycosurias are being separated from the cases of true diabetes. It is with the idea of considering all of the glycosurias and attempting to classify them that this paper was written, for it was felt that to accurately treat a given disease one should know as much as possible about the etiology, pathology and the changed physiology underlying the condition.

ALIMENTARY GLYCOSURIA

In the past much has been written about alimentary glycosuria and many cases have been diagnosed alimentary glycosuria and considered innocent that have later progressed into severe diabetes. Clinicians are at variance on the subject. By some, alimentary glycosuria is considered a clinical entity and by others, an early diabetes.

The glucose threshold that is the level of sugar in the blood that must be exceeded before sugar appears in the urine, normally lies between 160 and 180 mgs. per cc. The normal individual can pass this limit without glycosuria. The diabetic however, containing as they do, a higher concentration of glucose, both in the tissues and in the blood, spill over sugar into the urine on a slight elevation of their normal glucose intake. Sugar is excreted either because the level of the blood sugar has risen above the normal threshold or because the threshold is lowered. There is some mechanism by which the secretion of glucose is normally prevented(1). In other words, those cases which in the past have been classified as alimentary glycosuria have either been potential diabetics, as in case 1 herewith reported, or are examples of renal glycosuria. A diagnosis of alimentary glycosuria therefore should never be made without glucose tolerance tests.

Case. 1. G. H., male, age 34. During a life insurance examination, made after a heavy meal, sugar was found in his urine. In the previous six months he had had four other examinations and sugar had not been found. The patient possessed none of the characteristic symptoms of diabetes except that he was 20 lbs. overweight for his height and age.

Physical examination was negative. Wassermann was negative. Blood count was normal. Metabolic rate, 4.

Urine on first examination did not contain sugar. Blood sugar was 250 mgs.

This patient has been under observation since April 18, 1923, during which time his blood sugar has varied from 100 to 170 mgs. At no time has he passed sugar in the urine, although his diet has been varied from 70 G. to a G. of 232. A sugar tolerance test on March 1, 1925, showed a slow rise and slow fall, which is the typical diabetic curve, not reaching normal at the end of four hours. (See Chart 1). In other words, this patient, previously classified as coming under the head of alimentary glycosuria, is a potential diabetic or an aglycosuric diabetic and will, if not kept below tolerance, lose tolerance and develop typical diabetic symptoms later.

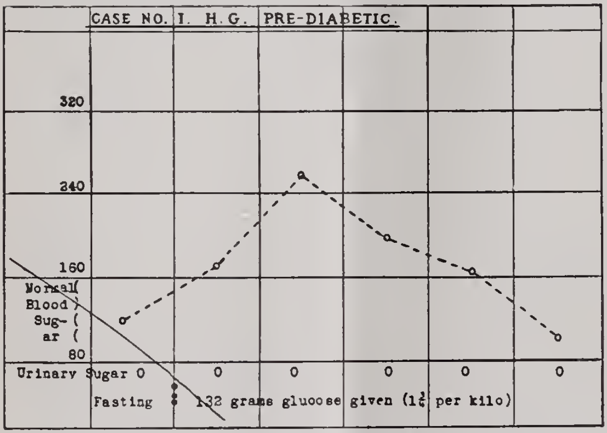


Chart I. The sugar tolerance test on G. H. Each space represents one hour and shows slow rise and slow fall, not reaching normal until the fifth hour.

RENAL GLYCOSURIA

If the relationship between renal permeability and blood sugar were the same in all individuals, it would be a comparatively easy matter to interpret the glycosurias. Unfortunately, however, there is no parallelism between blood sugar and urinary sugar either in the diabetic or in the so-called "innocent glycosurias." The glucose tolerance test on G. H. (Chart 1) shows a blood sugar going to 280 mgs. without urinary sugar and Chart 7 shows a persistent hyperglycemia in a known diabetic without glycosuria.

John(2) has recently reported a case with blood sugar between 40 and 50 mgs. with a glycosuria, ninety-nine cases of glycosuria with blood sugar at 120 mgs. and forty-eight cases with blood sugar above normal, without glycosuria.

It is well known that a smaller number of healthy people constantly excrete dextrose in amounts varying from 0.1 to 1%. The amount these individuals pass is usually fairly constant for that particular person. The best explanation for their glycosuria is either a lowering of the renal threshold or some change in the hypothetical combination of the glucose with the blood.

The renal threshold might be compared to a dam holding back the blood sugar. On the elevation of the blood sugar there is a spill over into the urine, as is the case with the true diabetic. In renal diabetes, on the contrary, there is no elevation of the blood sugar, but there occurs a lowering of the dam.

Cases of renal glycosuria are frequently found presenting family histories of this condition. Nine of the eighteen cases reported by Leyton(3) have given this history.

In order that a case may be diagnosed as one of renal glycosuria, we must satisfy the following postulates:

1. Specimens of urine and blood collected simultaneously must show a glycosuria with a normal or below normal blood sugar.

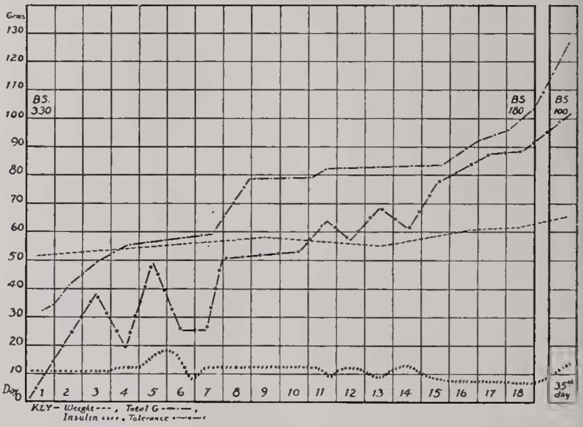


Chart II. Case or renal glycosuria. 1½ gm. glucose were ingested on fasting stomach at 8:30 a. m. In less than two and one-half hours the blood sugar was back to normal range.

2. There must be no symptoms of diabetes mellitus and sugar must always be present.

3. The glycosuria must not parallel the carbohydrate content of the diet.

4. The patient must not later develop a true diabetes.

Joslin(4) has particularly emphasized this latter fact and says the diagnosis is a dangerous one unless the element of time is considered. Leyton(3) reports seven cases of renal glycosuria with an average duration of eighteen years.

Klemperer(5) originally described the condition and although only two hundred cases had been reported up to 1923, I am sure it is far more common than the literature would lead us to believe. Glycosuria in cases of renal diabetes are frequently picked up in insurance examinations, and much harm is done to both the individual and the insurance company by this finding. Some companies are now recognizing this fact(6) and are insisting upon more complete examinations of the applicants presenting this symptom. Many cases have been subjected to rigid dietary restrictions on the assumption that glycosuria always means diabetes.

The following case in an example of the importance of an accurate diagnosis:

Case 2. J. S., female, age 26. Weight 97 pounds. First seen three years ago on account of a colon bacillus pyelitis. 0.6% sugar was found in urine. Blood sugar was 100 mgs. Patient stated that five years before first seen, sugar was found in her urine during a life insurance examination and she was rejected.

During the three years she has been under observation we have varied her diet from a total G. of 85 to a G. of 250. The urine has never showed more than 1.15% sugar and the total urinary sugar has never borne any definite relation to her diet. Most examinations have shown the urinary sugar to be 0.3 to 0.6%. Blood sugar tests taken at monthly intervals have always been below 120. She has no diabetic symptoms nor has she ever had any diabetic symptoms during the eight years she has been aware of the glycosuria. Removal of infected tonsils has had no effect upon the glycosuria, nor has exercise after meals had any effect, as is mentioned by Osler.

We have been guilty of treating this patient as a diabetic, putting her under rigid dietary restrictions and even using insulin, before sugar tolerance tests demonstrated to us that the case was not one of true diabetes, but a case of renal glycosuria. We believe this case to be a typical example of renal diabetes, or a non-diabetic glycosuria, as differing from Case 1, which is an example of an aglycosuric diabetes.

It is extremely important that these cases be properly classified for if a diagnosis of renal glycosuria is made in a case of true diabetes, it may mean the loss of tolerance and a mild diabetes may become a severe one. Glucose tolerance tests, or in the absence of that, a postprandial blood sugar test should be made in all cases in which this diagnosis is considered.

Phloridzin, corrosive sublimate, uranium salts and the chromates occasionally cause a glycosuria by irritating the renal tubules. Clinically these cases would resemble those of true renal glycosuria for although the amount of sugar excreted may be large, there is no hyperglycemia.

GLYCOSURIAS OF PREGNANCY

All reducing substances that are found in the urine are not glucose. It is important to differentiate a lactosuria from a true glycosuria. Where, in a given case of pregnancy there is found a true glycosuria, it may be a serious complication, for it is a well known fact that pregnancy frequently precipitates diabetes or exaggerates the condition and changes many cases of mild diabetes into severe ones. The prognosis and treatment, therefore, depend upon an exact diagnosis. This diagnosis will depend upon the following facts:

1. No diabetic symptoms in the presence of either pregnancy or lactation.
2. A normal sugar tolerance test.
3. Fermentation tests of the urine, for it is well known that glucose ferments rapidly and lactose slowly.

The finding of reducing substances in the urine should not be passed over as a trifling matter for in nineteen cases of diabetes in pregnancy Joslin reports eight first showed their symptoms with the pregnancy. A transient glycosuria during pregnancy may be followed by a permanent diabetes. (See case 3).

Case 3. Mrs. W. H. D., age 30, seven months pregnant. Sugar was found in urine on routine examination. No diabetic symptoms. Patient was seen intermittantly from 4-1-24 to 6-25-24. During this time the sugar varied from 0.3 to 0.35% and blood sugar varied from 100 to 180 mgs. It was impossible to get a sugar tolerance test. There was no response to dietetic treatment.

Sugar disappeared from the urine on delivery of baby, but six months later symptoms of diabetes became apparent.

It was impossible to satisfactorily study this patient, but it is my opinion that instead of the glycosuria being a physiological phenomenon of pregnancy, the pregnancy precipitated a true diabetes.

It is interesting to speculate on the role the thyroid may possibly play in the glycosurias of pregnancy. In the pregnant woman changes in the thyroid are common and may have an important influence, as is considered in a later paragraph.

Case 4. Mrs. H., age 24, primipara, whose urine had been examined each week throughout her pregnancy, showed 1.1% sugar on the morning of the fourth day after delivery. Blood sugar was 77 mgs. This patient had never shown any symptoms of diabetes previously and during two months observation, no sugar has since been found. I believe this to be a case of lactosuria but unfortunately the one specimen which showed sugar was thrown out before a fermentation test could be made.

EMOTIONAL GLYCOSURIAS

It is well known that emotion may cause glycosuria and hyperglycemia due to a nervous stimulation of the liver and the rapid conversion of the liver glycogen into glucose. This type is frequently seen in students, following examination, patients in neurological clinics, locomotive engineers and captains of ocean liners. Experimentally, these symptoms have been produced in rabbits as a result of pain and fright following punctures. The source of these will probably eventually be shown to be one of the ductless glands. (Engelbach).

Prognosis: It is important that consideration be given this type of glycosuria for the patient may be given a wrong diagnosis and submitted to a prolonged course of treatment. If the patient be shown to have a normal blood sugar following a tolerance test, one should then consider the glycosuria a functional disturbance, as they would a tachycardia or hypotension. It is important to remember, however, that repetition may lead to a permanent glycosuria and these patients should be carefully watched thereafter.

The influence of emotion is often seen in diabetic patients and any diabetic under dietetic control may get a return of the symptom glycosuria due to emotional upset, as is well shown by the following case:

Case 5. Jacob R., age 54. A mild diabetic, extremely nervous and easily upset. He was easily desugarized by dietetic treatment. This patient had a very typical exanthoma diabeticorum over both legs. After he had been sugar free for 15 days we made preparation to remove one of the exanthomatous nodules under local anaesthesia, but he became so upset nervously, that the operation was not performed. Test of his urine immediately following showed a marked glycosuria that promptly disappeared without any further dietetic restriction.

GLYCOSURIA IN NERVOUS DISEASES

Since the experiments of Claude Bernard it has been well known that puncture of the floor of the fourth ventricle will cause a glycosuria, and that glycosurias are found in some cases of brain tumors and fractures of the base of the skull with intracranial hemorrhage, probably due to pressure upon the floor of the fourth ventricle, or to disturbance of the internal secretion of the hypophysis. We have recently seen a glycosuria in a case of meningitis. Foster has recently reported a case of skull fracture with hemorrhage and unconsciousness, which was diagnosed as diabetic coma. Hemorrhages from other causes may also give rise to glycosuria as the following case will illustrate:

Case 6. Mrs. B., age 64. No. 17230. Was brought to the University Hospital June 27, 1925, at 10 p. m., in an unconscious condition. Urine showed 2.5% sugar, acetone 2+, diacetic acid 2+, and albumin 2+. Blood sugar was 367 mgs. Non-protein nitrogen was 55.5 mgs.

The patient was treated as a diabetic coma and it was not until she failed to show any response to a total dose of 155 units of insulin that we suspected that we were possibly dealing with a case of cerebral hemorrhage.

The history obtained from the family next morning stated that the patient had suffered a stroke of apoplexy eight years ago, involving left side of body. Six months ago she had an attack in which the muscles on left side of body twitched and she had a partial facial paralysis lasting four hours. On 6-26-25 she became drowsy while talking to her daughter and apparently fell asleep. She was brought to the Hospital 36 hours later. No history of previous glycosuria was obtained and the family did not remember that the patient ever had any diabetic symptoms.

The patient died without recovering consciousness. Post mortem examination by Dr. Keegan showed a softened area in the right frontal region of the brain and a large clot on the left side involving the lenticler nucleus.

GLYCOSURIA OF ASPHYXIA

After carbon monoxide poisoning and at times after ether and chloroform, traces of sugar are found in the urine in some individuals. Until more work has been done on this type of glycosuria, it would be impossible to state whether these are examples of potential diabetes or nondiabetic glycosurias.

GLYCOSURIA WITH EXOPTHALMIC GOITRE

This type of individual has a high blood sugar, as a rule, and the ingestion of glucose is immediately followed by an elevation of the blood sugar with a slow return to the lower levels. Respiratory experiments in these patients show that glycosuria is due to an excessive mobilization of glucose rather than an inability to utilize it as is the case in true diabetes. There is no decrease in the patient's ability to utilize glucose.

Feeding thyroid to animals produces a glycosuria by causing a discharge of glycogen from the liver and exerting an inhibitory effect upon the pancreatic hormone. The therapeutic use of thyroid extract is occasionally followed by glycosuria.

In these patients the sugar excretion is small in amount and irregular, and does not run parallel to the diet. High calory diets cause a gain in weight and strength even though the glycosuria continues. An improvement of the thyroid condition causes a disappearance of the glycosuria.

Holst(8) reports seven cases of Graves disease with glycosurias cured by hemi-strumectomy. It is well known that glycosuria of experimental diabetes decreases after thyroidectomy. It is always so proven that normally the thyroid exerts an inhibitory effect upon the pancreas and this would favor the hypothesis that the usual cases of non-thyrogenous diabetes there is a therapeutic possibility of hemi-strumectomy, not of curing the diabetes but of reducing the hypofunction of the Islands of Langerhans.

The prognosis for this type of patient would depend upon the condition of the thyroid. To attempt to desugarize him would be to subject him to unnecessary discomfort and is contrary to the treatment indicated.

Case 7. John K., age 40, laborer. Entered University Hospital in June, 1924, at the advice of his physician who had been treating him for diabetes. His earliest symptoms, coming on during the previous year had been extreme nervousness and weakness, accompanied by loss of weight, increased appetite, thirst, itching of the skin and palpitation. He stated that he had been under the care of various doctors, all of whom had found sugar in his urine and had been treated both dietetically and with insulin on the assumption that his case was one of diabetes.

1925 Date Dec.	Wt. of Patient	Diet in Calories	Blood Sugar	Vol. of Urine	Spec. Grav.	React	P	C	F	G	Albumin	Sugar %	Sugar Grams	Acetone	Diacetic
5	157	General	131	1000	1024	A					0	1.6	17	0	0
6		1860		1350	25	A	45	60	160	102	0	2,3	30	0	0
7		1860		1000	24	A	45	60	160	162	0	0	0	0	0
16	153	2080	117	1040	22	A	55	60	180	110	0	0	0	0	0
29		General	Operation								0	0	0	0	0
Jan 22		"												0	0
26		"												0	0
29		"										0	0	0	0
Feb 1		"	115									0	0	0	0
		B. M. Rate		+14	12/9/24										
		B. M. Rate		+12	12/26/24										
		B.M. Rate		−20	1/18/25										
		CASE OF EXOPHTHALMIC GOITRE WITH GLYCOSURIA.													

Chart III. Does not show the high blood sugar as is usually found in these cases. In the follow up on this case, no sugar was ever demonstrated in the urine.

Examination revealed a robust man of florid complexion, well developed and well nourished, showing a marked exophthalmus, fine tremor of the extremities, enlarged thyroid gland, and a pulse rate that was persistently over 100. Blood sugar was within the normal range. Basal metabolism rate was +14. On slight restrictions of diet, he was desugarized.

The case was considered as one of thyrogenous glycosuria and was operated upon by Dr. B. B. Davis. Further progress is illustrated in Chart 3.

GLYCOSURIA WITH PITUITARY DISEASE

(A) Hyper-pituitarism is associated with a low renal threshold for sugar in some cases, but glucose tolerance tests show a very slight raise in blood sugar, not exceeding 140 mgs. In other words, these patients have an increased carbohydrate tolerance but one could starve them to death without their becoming aglycosuriac.

(B) Acromegaly or pituitary gigantism occasionally show traces of sugar in the urine, due to involvement of the posterior lobe, and it is possible that the Claude Bernard type of glycosuria is due to this condition. Rosenberger, in a report of one hundred ninety-six cases of acromegaly found that seventy-two per cent of them showed the symptom glycosuria. This type, with involvement of the posterior lobe, is important only in that it may help the diagnosis of pituitary disease and Cushing has advocated glucose tolerance tests for testing the activity of the posterior lobe.

(C) It is possible that hypo-function of one lobe with hyper-function of the other, may cause a perversion of the secretion and be manifested by a glycosuria.

In the following case it is interesting to speculate on what may possibly be going on within the pituitary, remembering that the anterior lobe regulates and controls growth, gonads and secondary sexual characteristics and the posterior lobe is concerned with the regulation of carbohydrate metabolism, glycosuria, hyperglycemia, sugar tolerance and obesity (Engelbach(7)), and a diminished activity of the whole gland giving the symptom complex, which Frohlich has described as dystrophy adiposogenitalis:

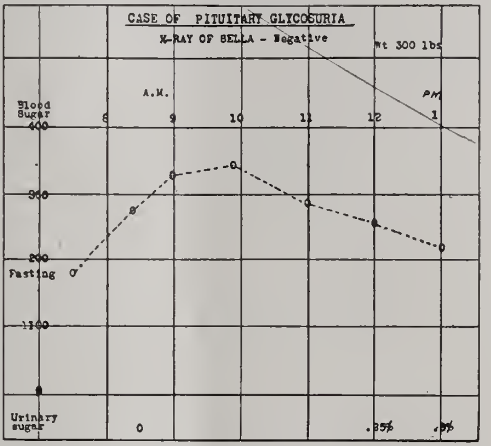
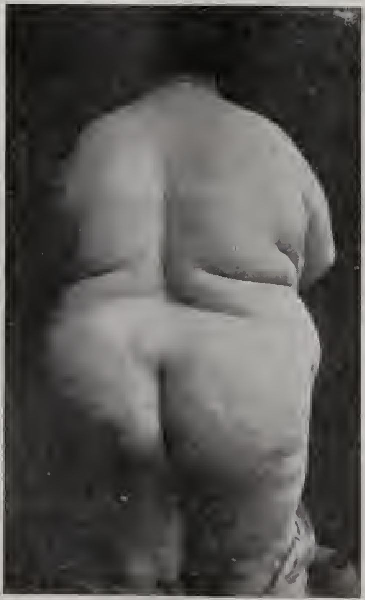


Chart IV. 1½ gm. glucose per kilo, ingested in fasting stomach.

Case 8. Mrs. Ethel B., age 39. Was referred to the University Hospital on account of having a trace of sugar in her urine. On careful questioning the patient stated that she had experienced no increase in appetite and thirst, has not lost weight or been troubled with weakness, itching of the skin or any of the characteristic symptoms of diabetes.



Physical examination revealed a woman 5 ft. 2 in. in height and weighing 305 pounds. She stated that this had been her weight for the last ten years. She had a marked girdle obesity and absence of the secondary sexual characteristics. In addition to this she gave an irregular menstrual history with cessation of the flow at 33 years of age. She had been married for ten years and has had no children.

Her blood sugar was 174 mgs. and there was a trace of urinary sugar. Sugar tolerance tests (see Chart 4) showed a high renal threshold, with slow rise and slow fall, a diabetic curve. She was easily desugarized during her stay in the Hospital, with a liberal diet, and left the Hospital sugar free.

This patient may be an example of the obese type of diabetic but we have included her case here in the possibility that she represents the glycosuria that occurs with pituitary disease, manifesting itself as a heteroactivity; that is the anterior lobe hypoactive and the posterior lobe hyperactive.

GLYCOSURIA IN TRUE DIABETES

Diabetes is a disease of metabolism in general but with special disturbance of carbohydrate metabolism. The abnormality is in the utilization of glucose rather than in its mobilization.

All carbohydrates, before they are absorbed must be converted into glucose, lactose, or levulose. The polysacharids are changed to disacharids by the action of ptyalin and amylopsin, and these in turn are converted into the monosaccharids, glucose, lactose and levulose by the inverting enzyme in the intestinal juices. These monosacharids are absorbed and carried through the portal circulation to the liver. Some change takes place here in the diabetic individual which either prevents him from storing the carbohydrates or from utilizing it after it has been stored as glycogen.

It is now supposed that glucose in its free state cannot be utilized in the metabolism into tissues but that it must first be combined with the internal secretion of the Islands of Langerhans. If this internal secretion is absent or inactivated by some other internal secretion or chemical substance, glucose cannot be oxidized and escapes in the urine. In true diabetes, changes have taken place in the pancreas that lessen this internal secretion.

It is necessary, therefore, that we go further than just the diagnosis of diabetes in order to give a prognosis or treat a given case. We must know more about the nature of the underlying diabetes and our prognosis and treatment must depend upon this, rather than on the symptoms or the intensity of the glycosuria. In the past we have been satisfied with the aphoristic statements that the older the patient the better the prognosis. In the light of present knowledge, we have not done full duty to our patient until we have attempted to accurately classify the clinical type to which he belongs.

The following clinical types of diabetes are met with:

1. Acute severe diabetes.
2. Diabetes of obesity.
3. Vascular diabetes.
4. Diabetes due to interstitial pancreatitis.
5. Miscellaneous group consisting of tumor of the pancreas, syphilis of the pancreas, etc.

ACUTE DIABETES

About nineteen per cent of diabetic patients fall into this group. They give a history of dietary excesses, physical or mental exhautsion, abdominal pain suggestive of pancreatitis, or a previous history of influenza in many instances. Hereditary influences are marked.

This type is characterized by (1) an abrupt onset, (2) gradually falling strength, (3) gradually falling weight, and (4) gradual falling of carbohydrate tolerance. Following the acute stage a more chronic period may occur, in which the symptoms subside and the carbohydrate tolerance falls more slowly. Acidosis with its complications may appear early, however, and cause death in a few weeks.

This type usually occurs in young individuals and the symptoms of polyuria and polydipsia are often so marked that the patient can usually give a definite date for the beginning of his symptoms. The juvenile diabetic is a typical example.

Prognosis: In 1920 Wilder(9) made the statement that he doubted that few, if any of these patients would be alive in two or three years. Since the advent of insulin however, this prognosis would have to be modified.

In these patients acute degenerative changes have taken place in the Islands of Langerhans These changes are progressive, accounting for the continuous lowering of the carbohydrate tolerance. With the advent of insulin, it is possible that these patients may be saved this loss of

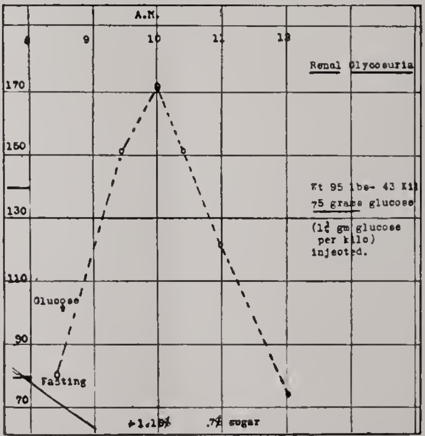


Chart V. Illustrates the severity of a typical diabetic. First seen with practically no tolerance and was markedly under nourished. Shows gain in tolerance and weight and reduction of blood sugar while under treatment.

tolerance by protective therapy, the insulin substituted for the insulin of their bodies and the patient carried over the crisis.

This is well shown in the case of Marjory M. who has been under our observation for two years and whose tolerance at the present time is appreciably more than it was on entrance.

Case 9. Marjory M., age 11. One sister had died of diabetes and her father is a diabetic. Patient entered the hospital complaining of loss of weight, extreme thirst, voracious appetite, all of which symptoms came on three months after an attack of influenza. Blood sugar was 330 mgs. and 80 grms. were passed in the urine in the first twenty-four hours. Weight was 53 pounds. On entrance the patient's condition bordered upon a coma. Chart V shows the gain in tolerance.

It is extremely important that these patients be educated in the matter of their diet and the administration of their insulin. The danger with this type is the danger of an acute infection causing a rapid loss of tolerance. Coma is primarily the cause of death but the complicating infection may be a most important causative factor. (Fitz)

DIABETES OF OBESITY

Both Von Noorden and Joslin have emphasized the importance of obesity as an etiological factor in the development of diabetes. Fifty per cent of the Jewish patients fall in this group, probably not because of an hereditary tendency to diabetes but an hereditary tendency to overeating and obesity. There is an hereditary history of obesity in forty per cent of this group. A prediabetic stage in fat persons has been recognized by Allen and it is possible that Case 1 falls within this group.

The onset of diabetes in these cases is usually mild, although the occasional case may begin with an acute attack. Pruritis, peripheral pains and polyuria may be persistent symptoms. However, they are particularly prone to develop acidosis in the presence of infection and one may see them for the first time after they have reached this stage.

Prognosis: This type of case is easily managed as tolerance falls very slowly, after dietetic control. If not cared for, however, the symptoms may become as serious as in acute diabetes.

The following principles are important in the management of these cases:

A. Reduction in weight, by reducing their metabolic demands lessens the work imposed upon the pancreas and is the first principle in the treatment of such cases.

B. They should be kept below tolerance.

C. Avoid infection.

Case 10. Mrs. V. H., age 51. Stated that at age of 24 sugar was found in her urine. She had always been heavy, her weight when first seen being 260 lbs. Up to the time of an accident one month ago, her weight was 300 lbs. 27 years ago she had gone on a diet but had later neglected it. Five years ago and again three years ago she had dieted for a short time.

On August 7, 1924, she was hurt in an automobile accident and came to the hospital with a marked phlebitis of the superficial veins of the left leg. On entrance she was passing 3.7% urinary sugar and her blood sugar was 330 mgs. Acetone and diacetic acid 2+. She was desugarized in three days and the blood sugar dropped to 120 mgs. She left the hospital on a total G. of 97 with calories 25% above basal maintenance and no insulin. She has easily kept herself sugar free and her blood sugar normal since that time.

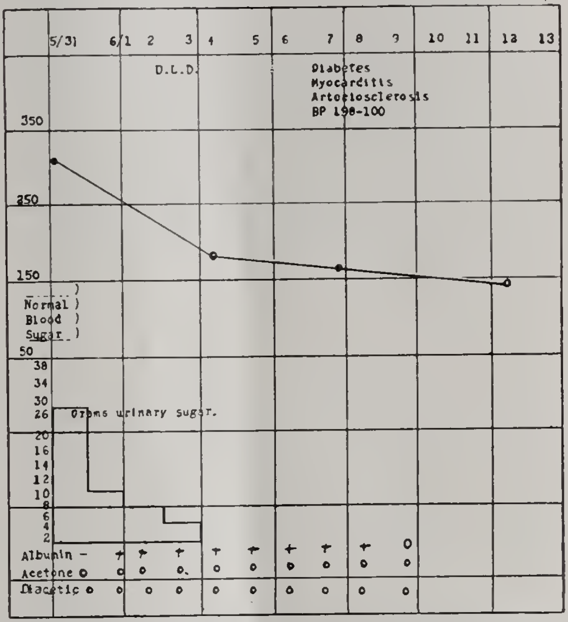


Chart VI. Case of vascular diabetes, showing marked arterio-sclerosis and myocarditis, illustrates the ease with which these patients can be desugarized.

This is a typical example of the obese type of diabetic and only the prompt treatment avoided the danger of an acidosis that would have become marked as the result of her infection.

VASCULAR DIABETES

This is the type of diabetes which is common in older individuals and probably accounts for the statement in the past that the prognosis for diabetes in aged individuals is better than in the young. In Wilder's group one patient was over eighty years of age, eighty were over forty, fifty-seven were males and thirty-two were females. Too large a number of this class are treated for neuritis, neuroretinitis cataract and pruritis, without urine examinations.

Most of these cases can be controlled dietetically. The use of insulin is disappointing because we cannot expect insulin to cure an arterio-sclerosis. Many of these cases have a high renal threshold and a high tolerance for insulin, as is illustrated in Chart VII. Oftentimes, in the treatment of these individuals, our first concern must be the treatment of the cardio-vascular symptoms.

Thirty per cent of diabetics fall into this group. The etiology is obscure and in most cases a history of vascular disease proceeds the diabetes, so we must conclude that blood sugar does not cause the sclerotic changes in the blood vessels. The patient usually comes in for gangrene or cardio-vascular symptoms and sugar is found in his urine upon routine examination.

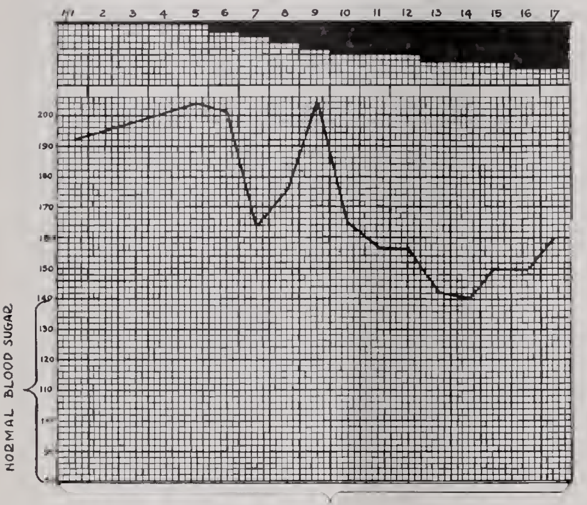


Chart VII. Mrs. A. B. Combination of interstitial and vascular diabetes, illustrates the absence of parallelism between blood and urinary sugar. Also shows high tolerance for insulin.

The typical symptoms of this group are milder than in the acute type and acidosis is not a characteristic finding. When it does occur it usually is a late manifestation and is accounted for by some infection. These patients rarely show any great weight loss, the large percentage of them tending to become obese. The urinary sugar may be as high as six per cent. Polyuria is an infrequent symptom.

Prognosis: These cases, on account of the danger of gangrene, have been the bugbear of the surgeon for years. Murphy once made the statement that no class of patients is more prone to surgical complications, has less resistence to infections and is less likely to recover. Insulin has changed this picture, however, and surgical complications occurring in the diabetic may be treated promptly without the fear of coma and death, as in the past. The mortality of the surgical diabetic, before the use of insulin, was forty per cent$^{(10-11)}$ and the first year after the introduction of insulin it dropped to 12%.

The course is chronic. One of Wilder's cases gave a history of twenty-seven years duration on very adequate treatment. Gangrene plus infection is the common cause of death. Fundamentally, the diabetes controls the situation and treatment must be directed toward its control before surgical intervention.

Case 11. Mrs. A. H., age 60. Entered the University Hospital complaining of weakness, aching, pains over the body, pain over the heart and palpitation. Stated that about a year ago she began to pass large quantities of urine and developed excessive thirst. Since that time sugar has been found in her urine repeatedly. She has been able to keep herself sugar free by slight restrictions of the carbohydrates. Previous to these later symptoms she suffered severe headaches, attacks of dizziness and throbbing and had a blood pressure persistently over 200.

Physical examination was negative except for cardiac hypertrophy and systolic blow at the mitral orifice. The blood sugar was 162 mgs. and there was a trace of urinary sugar. By slight restriction of diet and treatment directed toward the cardio-vascular symptoms, she was completely desugarized and left the hospital with a blood sugar of 150 mgs.

Case 12. Mrs. A. B., age 60. Entered the University Hospital complaining of numbness, pain and discoloration of the left foot, burning and itching of vulva and excessive thirst. X-ray examination 10-22-23 showed arterio-sclerosis of posterior and anterior tibial arteries. Was early desugarized.

Mrs. B. again entered hospital 2-28-24. Was operated by Dr. Kennedy. Amputation at junction of the upper middle third of leg under spinal anesthesia. Blood pressure 100/70.

Patient re-entered March 23. Blood sugar brought to normal with insulin. Operated on March 28 by Dr. Kennedy. Amputation at junction of upper and middle third. April 4th, gangrene of legs extending upward. Blood sugar was still high. Amputation of left leg above the knee on May 2, 1924. Patient died May 11, 1924.

Autopsy: Chronic interstitial pancreatitis, and arterio-sclerosis. (Post mortem by Dr. Keegan). Microscopic section showed almost complete absence of pancratic tissue, it being replaced by fibrotic deposits.

INTERSTITIAL PANCREATITIS

Ten per cent of diabetics fall in this group. These patients regularly give histories suggestive of chronic gall-bladder disease, gall stones or cholecystitis, or other inflammatory or degenerative diseases about the pancreas. They are often obese and the clinical picture may closely resemble type 2. Women above middle age who have borne children are particularly prone to develop this type of diabetes.

The course is chronic. The symptoms may be absent or slight. The striking feature is the ease with which these patients can be controlled by diet. If neglected, their tolerance falls slowly.

These cases illustrate the importance of an etiological classification, for if one were to judge of the prognosis by urinary symptoms he would be mislead. Where one considers the etiology, gall-bladder diseases, and so-forth, the prognosis becomes good. These patients often have a high blood sugar with absent or only slight amounts of urinary sugar and illustrate the importance of blood sugar determinations. (Chart VII).

This type is frequentlymet with in surgical clinics and the finding of urinary sugar may postpone an operation that is definitely indicated. Danger of operation must be weighed against danger of loss of tolerance and procrastination may mean coma. (Marsh) Treatment directed toward the gall-bladder disease may clear up the glycosuria.

Prognosis: If one will classify his diabetic patients he will realize that this patient's treatment should begin with the removal of the underlying cause. With proper dietetic and insulin preparation, the mortality in this type of operative case should be no more than in the non-diabetic gall-bladder case.

MISCELLANEOUS GROUP

(1). Syphilis.

Syphilis, either hereditary or acquired, may cause a pancreatic change which may cause diabetes. Attention has been especially called to this type by Warthin. Clinical and serological tests, however, tend to prove that the majority of diabetics are not syphilitic.

We have had the opportunity of watching one diabetic patient at the University of Nebraska dispensary who had a tertiary lues with a 4+ Wassermann. This case was difficult to control before antiluetic treatment was started but with energetic anti-luetic treatment, her tolerance returned and she was able to take a fairly liberal diet.

(2). Tumor of the Pancreas.

Case 13. E. C., colored, married, age 47. Admitted to University Hospital, January 8, 1924, complained of weakness noted for the past year. Had lost 25 lbs. during the past three months. Had polyuria, polydypsia and polyphagia for the last year. Had constipation, cramps in the legs and arms and trouble in walking.

Physical examination was negative except for absence of knee jerk and a urethral discharge. Wassermann four plus. Marked pyorrhea. Was put on Newberg Marsh diet, 1500 cal., G. of 53. Passed 30 gms. of sugar. His tolerance was 14. Began the use of insulin on Jan. 13, 1924, and was easily desugarized during his stay in the hospital. Remained in the hospital from January 10, 1924, to February 22, 1924. On entrance his blood sugar was 270 and the urinary sugar of 100, urine normal and total G. of 130, with no insulin.

Patient re-entered the hospital, Oct. 10, 1924, complaining of weakness, shortness of breath, swelling of abdomen, feet, ankles and scrotum. Stated that he had disregarded any dietary restrictions following his discharge from the hospital. Stated that he had felt fairly well up to six weeks ago, when he had begun to feel weak. Three weeks later his abdomen had begun to increase in size.

At this time his blood sugar was 250 and his urinary sugar 0.98%. He was desugarized in three days and was kept so during his stay in the hospital from Oct. 10 to Nov. 13, on a diet of 36 protein, 35 carbohydrate, 100 fat, total G. of 64. His blood sugar dropped to 90 mgs.

On Nov. 2, 1924, an exploratory operation was performed by Dr. Roeder. A gallon and a half of yellow, turbid exudate was removed from the abdomen. A probable diagnosis of tuberculous peritonitis and possible malignancy of the pancreas was made.

Post mortem examination on November 15, 1924, showed the primary cause of death to be adenocarcinoma of the head of the pancreas and chronic interstitial pancreatitis.

(3) Haemorrhagic pancreatitis.

(4) Calculus.

(5) Catarrah of the ducts may also be associated with disturbance of the carbohydrate metabolism.

CONCLUSIONS:

From the foregoing it will be seen that we cannot classify, give a prognosis, or outline a treatment on the severity of a symptom glycosuria without recognizing various types and various stages of these types. Every patient presenting the symptom glycosuria should be considered a diabetic until proven otherwise, but no time should be lost in proving or disproving the presence of a true diabetes, for great harm may be done the patient by delay.

The importance of ascertaining a patient's tolerance and keeping him below that tolerance is particularly important, as is shown by the type of acute diabetes.

The presence of a glycosuria in a non-diabetic and aglycosuric in a diabetic indicate the importance of blood sugar determinations and tolerance tests.

The uniformly bad prognosis given in previous years upon the finding of a trace of sugar in the urine is not consistent without present knowledge of diabetes and its treatment, for long life and diabetes are compatible.

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"It is true that our basic law says that every American is entitled to "the pursuit of happiness."—but not at the rate of fifty miles an hour."

THE FAMILY PHYSICIAN AS A SUPERVISOR OF CHILD HEALTH*

HARRY EVANS HARVEY, B. SC., M. D., FAIRBURY, NEBRASKA.

Supervision of child health is, or should be, primarily in the hands of the physician—the family doctor. I say family doctor because, in spite of all that has been said about the passing of the family doctor, most of us are, above all else, family doctors. If we give especial attention to the care and treatment of children, we are still to a large extent family physicians, but have narrowed down our field to those families having growing children.

Is it not true that we are in a very favored position for offering real service along this line? Is it not also true that we frequently discourage the attention that parents normally would give to the proper development of their children's health by attempting to minimize the importance of the thousands of questions that come in to us. We are all naturally lazy, part of the time we are actually tired, because of irregular hours. Sometimes we do not know, or have not thought out, a logical or rational line of procedure, and as sort of subconscious protective reaction, we sidetrack the problems, if possible. We are prone to think only of the acute diseases of childhood, respiratory infections, bowel infections and conditions of this sort and forget that many conditions may be avoided by preventive measures. Preventive medicine has given us many things in the last few years and exhaustive studies along the line of diet and corrective exercises have added more. All this the parents get an inkling of, through popular magazines of the present time, and become enthusiastic over, if properly presented by their favorite medical advisor.

The time has not yet arrived, and I trust will never arrive, when the supervision of our children's health should be turned over to some one of the various nursing groups. It is the school nurse, visiting nurses, county nurses, and recently I am informed, that an insurance company, for which I am examiner, has a nurse in the field. Now these groups are all very well intentioned and can help greatly in their proper place, but if the whole responsibility is allowed to rest on them, many children will suffer from incorrect information, and we, ourselves, will lose prestige in the minds of our clientele.

As this is a confession of faults, as well as of faith, it will be my attempt, not to point out anything new, but to point out in as sharp a manner as possible, where we stand and how a logical attempt may be made to gain the most from the circumstances.

It goes without saying that one can neither see nor advise intelligently, without first knowing. We have all been informed by study and observation, wherein children differ from adults. To keep that information at hand and to keep at ones service a rational series of standards for judgment is the first essential to an intelligent examination. Though we appreciate that the growing of a human body is a work that cannot be redone, we find the process difficult to keep in mind, because it lacks the essentials of an emergency.

Do we examine children or do we give them the "once-over"? Do we, when the opportunity is present, remember that a child has height, weight, a build, speech, mentality and facial expression? That he has a head, eyes, ears, nose, mouth, teeth, throat, neck and a back, as well as a front to his chest and an abdomen with a liver border, and perhaps a palpable spleen; that he has genitals, a spinal column, arms, hands, legs, ankles and feet? Do we find that urine, stools and perhaps the hemoglobin are normal? Of course, there may be circumstances under which all this information would lead us nowhere. Inquiry into all these points requires no great amount of equipment and no more information or experience, than we have at hand. The mother will respect us more, follow our advice more carefully and will appreciate our services more, if she sees these points observed, than if she sees we simply give the child, as the saying goes, the "once-over", compliment her on having such a fine child, recommend a line of treatment and tell her not to worry. She may believe us and then again we may be in a position similar to mine recently, when without going over to see, I assured my four year old daughter that I knew just how her paper dolls looked. She looked at me with wide eyes a moment and then with her best smile, said, "You mean you just play you know". Your patient may be just a child in your educated eyes, but sees through the fairy tale, even though she may not be as frank. A man with whom I am on very friendly terms recently had a sick child. The diagnosis, while not obvious, was definite. The recovery was slow and because he seemed a little dissatisfied a specialist was suggested. The diagnosis was verified and the same line of treatment recommended. A few days later I suggested that the situation was not much changed. These words in his reply I will remember, "No, but you should have seen the examination; the doctor was certain".

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*Read before the Seventh Councilor District Medical Association at Geneva, Nebraska, November 12, 1925.

The generally accepted method of getting at the condition of a patient is to first take a history, but it has occurred to me and I frequently find it has advantages to simply get the reason the patient has for coming in, make the examination, then secure the history and re-check. Such a routine permits an unbiased examination, or in other words allows us to make our observations and draw inferences, unprejudiced by whatever the patient or parent may say. It is one of the peculiarities of the mental process that the attention is apt to be focused on that on which most emphasis has been laid. This history is always important, but because in the case of children the history is given by a third party, it will be found to be even more full of contradictions, than is the history of an adult.

As a child comes into your office you may gain considerable information by noting the facial expression, the posture and gait, and any points possible about his mental activity. When the parent has told you why she has come, a rather complete routine examination can be made in only slightly more time, than a superficial one. The shape of a child's face, its head, the expression from the eyes and whether or not it is a mouth breather comes at the first glance. The examination of the fontanelle, of the scalp, of cervical and sub-maxillary glands bring out a number of facts to be followed up. Theoretically an examination of the ears, nose, throat and mouth should follow, but one will frequently get through the rest of the examination more easily, if this is left till the last, because most children, unless they have been taught, resent having their mouths looked into.

When one goes over a large number of children, he will be surprised at the number of chests, which are not merely variations in the normal shape, but which have actual deformities. Pigeon breast, funnel chest, drooping shoulders and Harrison grooves are to be found with surprising frequency. The posture again, which has already been noted will in some cases be seen to be associated with these abnormal conditions. The heart should, of course, here have proper consideration. Passing on to the abdomen we may find it enlarged, protuberant or retracted. The liver border up to a certain age is normally palpable, but when this palpable border becomes more than a border it becomes pathological. A palpable spleen will seldom be found, but when it is found, its significance justifies the slight additional trouble.

An examination of the groin will show enlarged glands more often than one would suppose, frequently from an infection under the foreskin or about the anus. Parents are particularly concerned whether or not the genitals are normal. So many conditions have been attributed to some trouble here that it is worth while to be able to assure a parent that nothing, is wrong, with the positiveness that comes from knowing.

The legs may show a tendency toward bowing or knock-knees. Knock-knees being present the ankles will frequently be found turning in and the feet flat, with the musculature poor and ligaments relaxed. If the spine is now examined a number of points may be noted that will be correlated with the other findings. If the chest, abdomen and feet are normal the anterior-posterior curvatures as well as the posture will probably be normal, but again a surprising number of children will be found to have exaggerated anterior-posterior curves with a flatening of the chest, drooping shoulders, protuberant abdomen, knock-knees, ankles in and flat feet, which lead us later to a consideration of the general state of nutrition. Among smaller children the same type is characterized by thin hair, square head, abnormally large fontanelles, relaxed muscles, drooping shoulders, beading of the ribs, protuberant abdomen, enlarged joints and as often fat as thin. The clinical picture is that of rickets, but it is found so often in families in good circumstances that its cause cannot be accounted for by the poor living condition we usually associate with that clinical syndrome.

In the examination of the mouth, nose and throat, finding a broad flat bridge with pinched nostrils and sagging or protruding lower jaw gives you almost certain information that the nasal air passages are obstructed. The upper jaw has a tendency to develop less rapidly, than it should, and the teeth are crowded. The tonsils may be only enlarged or they may be infected as well, and show evidences of recurrent attacks of sore throat. On the other hand they may be very innocent looking, showing only a red border to the anterior pillar, but they together with infection in the nasopharynx will account for enlarged cervical glands previously noted. Interference with normal breathing cuts down oxygen consumption. If the hearing is dulled, then you have all the conditions necessary to account for the child being dull and listless. That is, he has poor oxygen and carbon-dioxid exchange, toxemia from infection, lack of easy contact through the ear and poor mental receptivity. Such a condition has a tendency to perpetuate itself through recurrent respiratory infection.

About the first sign of real development that a parent notices in the child is the appearance of the first tooth and after the third or fourth tooth appears they become largely a means of explaining the various little upsets to which children of the teething age are subject. But teeth tell the story of poor nutrition, poor calcium metabolism and of bad habits of years past. To most parents mouth breathing is just a disagreeable fact and thumb sucking only a baby habit. They do not realize that teeth can complete their development in the jaw, only as it is; and an otherwise beautiful child is often disfigured by irregularities in denture. Once these defects appear the harm is done and the condition is to a great extent beyond repair.

By making a routine examination of the urine, the reason for an anemia, a so-called run down condition or an unexplained temperature may come to light when least expected, and even the inspection of a stool will give more information than the patient's story. Making an actual test of hemoglobin will convince the patient and fix in our minds the real conditions. I have selected in this discussion of the examination only a few of the points to be considered, but I believe they are among those most easily overlooked.

Nearly all parents are very anxious that their children shall be of some importance in the world and if we explain, in terms they can understand, why all these little defects or abnormalities retard not only the physical and mental development at the time, but lessen the prospects of attaining success in life, they will be more apt to think of these points less as a fad or as a means of bringing the doctor gain and more in terms of what it will mean to their own children.

In the study of two series of examinations of children from six months to five years, conducted at the county fair, the frequency of these defects are brought forcibly to my mind. The first group of one hundred children examined by myself, only defects and abnormalities assuming a serious nature were noted. In the second group of one hundred fifty cases in which I assisted another man abnormalities were checked, if they were present only to a slight degree. Below is a tabulation of these findings.

	First Group 100 Examinaations. Deformities Present to a Marked Degree Percentage	Second Group 150 Examinations. Deformities Noted Even if Present Only to a Slight Degree Percentage
Abnormal Throat	3	6
Abnormal Shaped Chest	11	67
Beaded Ribs	2	6
Lateral Curvature of Spine	6	4
Marked Anterior-Posterior Curvature of Spine	3	0
Winged Scapulae	4	6
Distended Abdomen	3	16
Abnormalities of Genitals	14	36
Abnormal Shaped Head	3	8
Fontanel open beyond eighteen months	5	2
Enlarged Cervical Gland	7	20
Bow-legs	5	6 2-3
Knock-knees	7	43
Flat feet	12	36
Poor Musculature and Poor Nutrition	6	52
Faulty Posture	9	6 2-3

Is there any reason then for surprise that so large a number of our young men were unfit for military service. Further a check on those accepted would have shown a surprising percentage with correctable physical abnormalities having their origin before five years of age. This has been brought to my attention in the last two years in the examination of high school boys for participation in athletics; a group which should be particularly favored.

What can be done to right such conditions? To have every child perfect is an impossible goal, but to have every one better can become the pleasure of the physician and the pride of the parent. Primarily the object must be to prevent and secondarily to correct by removing causes and taking advantage of the growth process. First I would emphasize the encouragement of breast feeding. So many reasons have become popular for taking a baby off the breast. If the baby has not gained, the addition of a simple cow's milk formula would usually be sufficient. But the dozens of artificial foods advertised with the picture of a pretty fat baby act as a constant encouragement to the nervous mother to put the baby on some artificial food. They make it seem so easy. Once the baby is here, nothing is left to do, but buy a case of someone's baby food and follow the directions on the can. The doctor is not guiltless. If the baby does poorly or keeps the parents up at night, it is tried on first one and then another food with instructions to follow directions. The manufacturers flood the doctor with samples and literature. To have a fat baby larger than any other is made the measure of successful feeding, when quality, not quantity would be a better slogan. Is it any wonder that the fat baby brought up to or far beyond its so-called normal weight by high carbohydrate food shows poor bony development, prominent forehead, faulty teeth, poor musculature, flat chest with costal border flaring over a protuberant belly and later knock-knees and flat feet? After table food is taken the tendency is still to overlook the fact that only certain foods are bone and muscle builders, that the others supply only heat.

It would be outside the province of this paper to attempt a discussion of foods necessary to a rational diet. If the defects are already present, are recognized by the physician and appreciated by the parent, a real outline for a rational diet with medicine, as seems necessary, can secure the best results only by checking any advantage gained at regular intervals by an examination.

It is true that we as a people walk less and less, but most of us must stand. To do so without fatigue makes the cultivation of correct posture essential. The feet must be able to carry the weight. The explanations of the mechanics of the foot make it unnecessary to have an orthopedic surgeon prescribe a wedge shaped lift on the inner edge of the sole. Yet I believe so simple a thing could prevent many of the socalled weak ankles accompanied by some degree of flat feet, if made use of, and followed up during the growing period.

Much concern and study are given to prevention of devastating diseases. The use of toxin antitoxin and Dick's newer preparation will certainly come into general use, but prevention of these less clearly cut clinical syndromes with their abnormalities and later permanent physical defects can come only thru sympathetic interest of the family advisor.

It is always easier to talk than to do, but if you have been brought to think about the possibilities as they exist, the object of this paper has been attained. We talk about control of cancer, treatment and prevention of cardio-vascular disease, the training of the physically unfit, the social derelicts and all the long list of praiseworthy causes to which medical and social organizations have dedicated themselves, but none offer so fertile a field for increasing the length, usefulness and happiness of human life, as that with which we are in daily contact. Compared to the attempt on the part of every child to attain real physical and mental maturity, the ills of adult life are trival incidents of the day, and the physical course of later life becomes to a great extent the proof of the success or failure of this early period.

RHEUMATIC FEVER*

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An attempt will be made in this paper to correlate some of the symptoms of rheumatic fever with the more recently described pathologic changes and to stress the importance of the cardiac features of the disease.

The relationship of tonsillitis, rheumatic fever, chorea and endocarditis has been emphasized for many years but the almost constant involvement of the heart in true rheumatic fever has only recently been more generally recognized. Rheumatic fever and chorea are the causes of 95% of the cases of heart disease in young people (Faulkner and White(1)). In an analysis of the autopsy records of 600 hospital cases, Cabot(2) found that 278, or nearly one-half, were due to rheumatic infection. Halsey(3), quoting from the Report of the Department of Commerce, Bureau of Census 1920—P. 49, says that in 82.2 per cent of the population there was a death rate from heart disease of 141.9 for each hundred thousand, and the total number of deaths was 124,143, which represents 10.9 per cent of the deaths from all causes. During the six years, 1915 to 1920, there were more deaths from organic heart disease than from tuberculosis. Several states show death rates over 150, and from 23 to 86 points above the rate for the registration area. If the rate in the registration area outside the cities is compared with the rate in the cities, a large increase is found in the cities. This is an interesting side light on the modern mode of high tension living, and may in some measure explain the apparent increase in the morbidity of heart disease.

Colorado does not quite seem to be keeping pace with other parts of the country. In 1918 there were 951 deaths from heart disease of all kinds; in 1919, 818 deaths; in 1921, 893; in 1921, 914; in 1922, 1139; and in 1923, 1130; nearly 200 more deaths from heart disease in 1923 than in 1918. If rheumatic infection is the cause of only one-half of these cases, and to these are added the individuals who are disabled and perhaps dependent on account of heart disease, the economic importance of rheumatism can readily be seen.

ETIOLOGY

A specific organism universally accepted as the cause of rheumatic fever has not yet been isolated. The diplococcus rheumaticus described by Poynton and Paine in 1900 was held to be the specific cause, and is given as such. In 1914 Rosenow isolated several different strains of streptococci from the joints, tonsils and blood of rheumatic patients, by his method of growing them at different oxygen tensions on special media. This work was corroborated by some investigators and denied by others. Rosenow insists that if his technic is properly carried out, a positive result can always be attained. He also believes that non-virulent streptococci undergo changes in the tonsils which make them capable of giving rise to rheumatic fever.

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*Read before the Medical Society of the City and County of Denver January 19, 1926.

Clawson(4) describes the organisms isolated in twenty cases of well defined acute rheumatic fever. rheumatic endocarditis or chorea. All of the twenty strains were isolated from the blood before death, except seven. Two of the seven were isolated from rheumatic joints before death, two from pericardial exudates at necropsy, two from the blood at necropsy and one from the pericardial exudate and spleen at necropsy. This streptococcus generally belonged to the viridans group.

According to MacCallum(5), as to the cause of the disease, little can be said. It seems certain that rheumatism is caused by a specific infectious agent of some peculiar kind, not recognizable by our present methods of study and not as yet found to be transferable to laboratory animals. The constancy and peculiarity of the characteristic lesion makes it seem very improbable that any of the numerous forms of bacteria that have been isolated from such cases can have a true etiological relation to the disease. The characteristic lesions are found everywhere in the myocardium, the valves, the walls of the auricles, and the visceral layer of the pericardium. They have the same general structure as the submiliary nodules of Aschoff described by him as occurring in the musculature of the ventricles. Of similar structure are the subcutaneous nodules and the lesions found in the periarticular tissues and in tendinous insertions, as well as in the walls of the aorta. The virus localizes itself in foci usually about a fibre of connective tissue, which at that point becomes necrotic, after which large wandering cells range themselves radially about it and are accompanied by a diffuse exudate of other smaller wandering cells.

There seem to be a number of predisposing factors to the development of rheumatism, such as environment and general living conditions. Regional distribution is apparently of some importance. Thus Harrison and Levine(6) found that rheumatic fever was much more common in Boston than in Richmond, Oklahoma City, New Orleans and Galveston. Boston and St. Louis occupy intermediate positions. According to Faulkner and White(1), families of "rheumatic" patients are more than twice as apt to have another member with a rheumatic infection as families of non-rheumatic persons.

The age of the patient influences to some extent the character of the predominating symptoms in a given case. In adults the joint symptoms are usually more severe, and obscure the more important cardiac features. In children the cardiac symptoms are often the first clue to the nature of the illness, the joint involvement being slight or entirely lacking. Clinically there are many conditions which are often called rheumatism. We often see acutely inflamed joints which promptly subside after the extraction of the abscessed teeth or the proper drainage of an empyema. We also see arthritic manifestations in pneumonia, gonorrhea or pyemia. These are not examples of true rheumatic infection, the heart not being so often involved.

In the following case report, the etiology at the onset might be questioned, but the clinical course conforms to the pathology of rheumatic infection:

Miss M. B., 5 years of age, was seen January 28, 1918, with typical scarlet fever. February 14, 1918, she developed what appeared to be a typical attack of measles. February 19, 1918, paracentesis was done for double otitis media. February 27, 1918, chicken pox appeared. Shortly after this, she was vaccinated and had a severe reaction. April 8, 1918, a mitral regurgitation was detected. She was discharged in good condition on July 6, 1918. Was seen again February 20, 1919, after having been snow-bound at the top of the Continental Divide for two days. At this time she complained of weakness, pain and swelling of the knees and ankles. There was an urticarial rash on the arms, face and trunk. There were small glistening swellings about all of the terminal phlangeal joints. Temperature 101° F. These symptoms all subsided in about six weeks. September 24, 1919, tonsillectomy was performed on account of the return of the subcutaneous nodules. These nodules disappeared and returned various times during the remainder of the illness. From February, 1920, to July, 1924, there were numerous exacerbations of the cardiac infection and slight joint involvement. July 7, 1920, signs of pericarditis with effusion were observed. In April, 1924, marked cardiac irregularity developed and edema of the ankles was noted. Her condition became gradually worse and she died July 24, 1924, of cardiac decompensation with general anasarca, just 6½ years after the beginning of the scarlet fever.

I wish to emphasize in this history the onset with scarlet fever and the other acute infections, the numerous relapses and progressive involvement of the various cardiac structures, and the presence at different times of the subcutaneous nodules which are looked upon as being of bad prognostic omen.

The Tonsils: The question as to the importance of the tonsils as a portal of infection and as a nidus for reinfection has been debated pro and con by many observers, and it seems that a united opinion has not been reached as yet.

Ingerman and Wilson(7) in a study of the relation between tonsillectomy and the occurrence of rheumatic manifestations showed that 76 per cent of eighty-eight cases have been followed by recurrence of rheumatic manifestations in from one to eleven years after tonsillectomy. In a control group of ninety-seven cases, without tonsillectomy, studied over a similar period, 80 per cent showed recurrence of rheumatic manifestations, a very small percentage of difference.

St. Lawrence studied the effect of tonsillectomy on the recurrence of acute rheumatic fever and chorea in a group of 94 children, and concluded that tonsillectomy seemed to be the most important measure at present available for the prevention of acute rheumatic fever.

Robey(8) says, "I am satisfied from an experience of more than twenty years that tonsillectomy has much to recommend it. I make this statement not as my 'opinion' or my 'belief' but from cases which I have actually followed. If one's successes outweigh the failures, as in my experience, is not that sufficient reason for operation?"

Whether the tonsils are the cause of repeated relapses so common in rheumatic infection, or whether other foci, such as the involved joints or the endocardium, are responsible is still a moot question. Any tissue previously the seat of rheumatic infection would seem to be the most obvious source or focus for reinfection. Indeed, arguments have been presented to prove that the virus locates first in the heart valves, and that minute emboli from this source are swept to the joints and elsewhere from time to time, causing reinfection. Krogius(9).

TREATMENT

The value of tonsillectomy in modifying the course of the disease is clearly shown in such cases as the following:

A woman, 30 years of age, was seen with an attack of acute tonsillitis, March 1, 1925. Two weeks later she developed rheumatic fever with very acute symptoms and successive involvement of practically all of the joints of the body, the temperature at times reaching 105° F. She stated that she had had a similar attack 14 years previously, but had since been in good health except for attacks of tachycardia. She was sent to the hospital March 22, 1925. Examination at this time revealed no murmurs, but the heart was very irregular, dilated, and the blood pressure was low. She was treated with digitalis and large doses of salicylate of soda, which very quickly produced gastric distress. When this occurred the salicylate was given in 30-60 gr. doses by proctoclysis which controlled the pain effectively. In spite of this medication, she continued to have periods of fever to 103° F., alternating with periods of less fever, but was never without it. On June 6, 1925, the tonsils were removed while the temperature was still averaging 102° F., daily. Three days later the temperature was normal and has remained so since, without further medication.

A man 32 years of age developed moderately severe rheumatic fever in August, 1924. The fever, which was never above 103° F., subsided in about four weeks, but the joint pains continued with great severity. The pulse rate remained rapid — 110 to 120 — and much more rapid on the slightest exertion. The patient complained of pain in the left shoulder and arm, also over the left pectoral region, suggesting involvement of the aorta. There were no murmurs. The blood pressure averaged about 90 systolic and 70 diastolic. He was given sodium salicylate twenty grains intravenously twice daily, and thirty grains by mouth every four hours together with sodium bicarbonate. This had little or no effect on the joint pains though it was continued for many weeks. It caused no gastric disturbance. Tonsillectomy was performed with local anesthesia in February, 1925, after which the joint pains promptly subsided without further medication, though some stiffness remained till the following August, just one year after the beginning of the infection. The patient had remained at rest practically all of the time. The heart rate became gradually slower until November 1925, when it was 80. I attributed this in great part to the prolonged rest.

Many of the accessory methods of treatment, such as the local application of heat, counter-irritants, and splinting, are useful. The pain is most successfully controlled by the use of the salicylates, in large doses. When they can not be given by the mouth, it has been my experience that their beneficial action is just as prompt when given by proctoclysis as when given intravenously. As much as 600 grains have been given in 24 hours. Shock therapy, injections of foreign protein such as milk or typhoid vaccine has been used by some with good results. If we could induce our patients to take long periods of rest, after the acute symptoms have subsided, such periods as are at present used in the treatment of tuberculosis, fewer cases of permanently damaged hearts would be seen.

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"Model wives still are, as in olden days, model wives. But they're 1926 models now."

HAND INFECTIONS: INVOLVEMENT OF TENDON SHEATHS AND FASCIAL SPACES

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A number of cases of hand infection treated at the University Hospital and in private practice have been reviewed to determine the cause of frequent disastrous end results with tendon sheath and fascial space infections.

These cases have been referred because of unfavorable progress. In almost every instance it would have been possible to have arrested the infection before spread occurred from the original site. In each case reviewed, the reason for failure to arrest the infection in its incipiency was sought. The outstanding errors are given in the order of their significance.

(1) Lack of knowledge of anatomy.

(2) Inability to anticipate the direction of spread of infection.

(3) Failure to diagnose the presence of pus.

(4) Incising areas where no pus exists.

(5) Opening new avenues of infection by improper incisions.

(6) Incising lymphatic infections not localized.

(7) Improper dressings and improper medication.

It will be seen that most of these errors are a result of the first, a lack of knowledge of the anatomy. There are several important sheaths and spaces which are involved in the more important infections and these will be discussed in relation to anatomy, symptoms, diagnosis and treatment.

The diagnosis of tendon sheath infection is difficult in the early stage. This is unfortunate because early diagnosis is essential for proper treatment. It is equally important to recognize the absence of tendon sheath involvement, since many simple cases have been converted into tendon sheath infections by incising through the infected area into the tendon sheath. It is not possible to make a rule as to whether one should or should not make an incision when in doubt. It will be necessary to make an accurate diagnosis before proceeding.

Once the tendon sheath infection is diagnosed, it should be considered a major surgical condition, with full realization of the disaster which may result from unskilled treatment. The treatment is more difficult than that of such major conditions as appendicitis or hernia. Also the prognosis is much more serious with improper treatment in the former than it is in the latter.

In the diagnosis it should be remembered that the location of pus is determined by tenderness and not by swelling. In every case of severe hand infection the dorsum is markedly swollen, yet rarely is the dorsum involved in the sense of pus being present. A great majority of the cases reviewed had from one to four incisions on the dorsum of the hand, yet it is safe to say that in not one of them was pus present in this location when the incisions were made.

Teno-synovitis is diagnosed by three outstanding signs and symptoms. 1. Tenderness over the course of the sheath which is limited to the sheath. 2. Flexion of the finger. 3. Pain with attempted extension of the finger. The fingers next to the involved finger will show flexion and tenderness to a less degree. The tenderness along the sheath of the involved finger will be so acute, however, that one can hardly make the mistake of diagnosing involvement of the adjacent fingers.

The pain in the involved finger may become less after twenty-four to forty-eight hours due to loss of function of the nerve. This will add to the difficulty of diagnosis if the individual is seen late. Swelling and redness, or possibly blanching with extreme swelling, are additional symptoms but these do not aid in differentiating from infections not involving synovial sheaths.

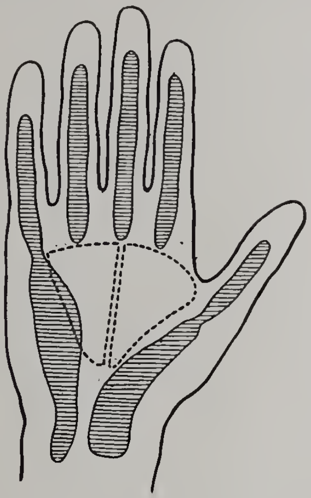
The spread of infection to other tendon sheaths or other fascial spaces is diagnosed by the spread of tenderness to the newly involved areas. With a proper knowledge of the anatomy it is possible to anticipate the direction of spread if extension occurs. Bearing this in mind one will be more liable to detect the first signs of extension.

It is now necessary to consider the hand anatomy. This brief description must, for want of space, be confined to the more commonly involved sheaths and spaces, the finger sheaths of the flexor tendons, the middle palmar space and the thenar space. The accompanying diagram shows the usual arrangement of these spaces. In discussing the digits they will be designated as the thumb, first, second, third and fourth fingers. Also the description will be of the arrangement commonly present, and variations from the usual anatomy will be discussed only when they have special significance. In order to be brief I will risk minor inaccuracies in description which in no way affect diagnosis or treatment.

The tendon sheaths of the flexors of the first, second and third fingers end proximally at the metacarpal-phalangeal articulations. They do not ordinarily communicate directly with each other.

Rarely these sheaths may continue proximally to the forearm.

The sheath of the fourth finger widens into the ulnar bursa and continues proximally to one inch above the annular ligament in the wrist. The sheath of the flexor pollicis longus extends in the same manner by way of the radial bursa.



The ulnar and radial bursae communicate in about fifty per cent of individuals. In the cases where they remain separate, their proximity allows infection to travel from one to the other.

The middle palmar space may be roughly outlined as a triangle with the apex one-half inch distal to the proximal end of the third metacarpal bone and the base at the metacarpal-phalangeal line from the middle of the third to the radial side of the fifth metacarpal bone. The ulnar side is along the radial border of the hypothenar muscles, and the radial side is limited by the attachments to the third metacarpal bone. The space is bounded anteriorly by the flexor tendons and posteriorly by the metacarpal bones.

The thenar space occupies an area on the radial side of the middle metacarpal bone. It is limited anteriorly by the flexor tendons and posteriorly by the adductor muscles of the thumb. It extends radially to the radial border of the second metacarpal bone.

With this anatomical arrangement in mind it is possible to anticipate the direction of spread of infection from a given primary focus.

Infection from the synovial sheath of the little finger may spread to the ulnar bursa, and through it to the radial bursa and thumb. More rarely it may extend to the middle palmar space or to the third finger. It is quite probable that extension from one finger to the other occurs through anomalous communications between the tendon sheaths.

Third finger involvement may spread to the middle palmar space or more rarely to the adjacent fingers.

Infection of the second finger may spread to the middle palmar space, more rarely to the thenar space or to the adjacent fingers.

Except where there is an anomalous direct communication between sheaths, extension from one sheath to another or from a sheath to a space probably takes place through necrosis of contiguous boundaries.

Infection of the sheath of the first finger may invade the thenar space or the sheath of the second finger.

Synovial sheath infection of the flexor pollicis longus will usually involve the radial bursa, and through it the ulnar bursa and fourth (little) finger. It may occasionally involve the thenar eminence.

The middle palmar space may be involved by extension from the second, third and fourth fingers. More rarely the space is infected by extension from the ulnar bursa and thenar space. It is also possible for it to be the primary seat of infection by direct implantation. This, however, rarely occurs. With a punctured wound in the palm of the hand the infection is usually above the palmar fascia.

The thenar space is involved usually through the first finger, less often through the middle palmar space or by direct implantation. Here again wounds over the thenar area will usually be too superficial to invade the thenar space.

Knowing the probable direction of spread it is possible to detect the first signs of extension to any area. There are certain clinical signs peculiar to palmar and thenar space infections which if observed prevent mistakes in diagnosis. In the palmar space the concavity will be converted into a convexity. Thus it will be possible to differentiate actual involvement from simple irritation and edema. In the latter there is swelling but the concavity is not lost. It is more difficult to differentiate between thenar space infection and superficial infection of the thenar eminence. Although the swelling is quite marked in the latter, in the former it is out of all proportion to any swelling which may occur in the hand.

Once the diagnosis is made, the treatment of tendon sheath or fascial space infection is immediate incision at the site of pus. The opening should be adequate but not so extensive that it destroys or causes to be infected neighboring structures not already involved. In the fingers the incision should be at the sides of the tendons and not in the mid-line. This is to prevent the tendon sheath from prolapsing. In a case recently seen in which a continuous incision had been made from the distal phalanx to the middle of the palm, the flexor tendon was completely displaced from its normal position and appeared as the taught string of a bow. To drain the infection at the proximal end of the finger sheath, the incision may be in the mid-line since prolapse of the tendon cannot occur here. It will seldom be necessary to incise the sheaths in the two distal phalanges as these are rarely involved, the terminal almost never.

The middle palmar space is approached through an incision just proximal to the web between the second and third or third and fourth fingers depending upon which finger the infection has extended from.

The ulnar bursa is opened along the radial border of the hypothenar eminence with an adequate incision about one inch long.

The radial bursa is opened with an incision slightly to the radial side of the highest point of the thenar eminence.

The thenar space is best reached through an incision beginning on the posterior aspect of the web between the thenar eminence and first finger. The instrument is then directed anterior to the metacarpal bones staying well to the radial side of the third metacarpal to avoid entering the middle palmar space.

I have not included the forearm in this discussion. However, one point should be emphasized in regard to the position of pus which reaches the forearm from the hand. It is always under the flexor tendon, therefore, the incision to reach it must be deep enough to get into the space between the flexor tendon anteriorly and the pronator quadratus posteriorly. This is best accomplished by a lateral incision along the ulna, directing the scalpel radially and remaining close to the bone.

After making the necessary incision or incisions a slip of rubber tissue is inserted into the wound and the entire hand enveloped in a large wet pack. By giving the patient or nurse specific instructions to wet the dressing every two hours with warm sterile water or boric acid solution there will be no possibility of the dressing becoming dry. No irritating solution such as alcohol or lysol should be used as such medication will devitalize tissues which are already handicapped by the infection.

The hand should be put at rest by means of a splint and the patient confined to bed for several days. In the meantime the uninvolved fingers should be exercised daily to prevent ankylosis. In old individuals immobilization of the involved fingers for one week is sufficient to cause a permanent loss of flexion and extension.

When one repeatedly sees hands with function lost through infection he must be impressed with the fact that these cases are not being given proper consideration. While comparatively few hand infections have tendon sheath or fascial space involvement, such involvement is by no means rare. Therefore, the physician must always be on the alert to recognize the condition, and when it does occur give it the consideration of a major problem. This brief review is by no means intended as a complete description of the pathology and treatment, but is intended to stimulate a desire for further study.

THE PHYSICIAN AND HIS COMMUNITY*

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The nature of the contact between doctor and society, whether in the personal relation of doctor and patient or in the more formal and official cooperation between organized medicine and local or general government, is at any moment of time an equilibrium between the profession, its state of organization, education and ethics and the public with its opinions, organizations and movements amidst which the profession has to do its work and to which it cannot safely maintain an attitude of corporate or personal indifference and aloofness.

In the attitude of both laity and profession the determining psychological factors are largely history and education, education consciously modifying the profession, history unconsciously moulding the public, but the converse also obtains. The doctor is dependent on his professional traditions, and here in America, at least, it is a fundamental belief that the public can be educated. Indeed the possibilities are more than that. The public left to itself will provide its own instruction, and if the medical profession has not always been mindful that doctor means teacher and has neglected until recently the field of public education, the public for its part is ready to teach the profession what the public wants, and failing medical cooperation and guidance, will not hesitate to create what it deems appropriate means to attain its ends.

The easiest approach for the writer to the problems inherent in this complex situation is through the field of his own preoccupations and he would ask leave to outline briefly three educational projects, which are now engaging the attention of educators, and are believed not only to increase medical efficiency, but to promote more helpful and cooperative relations between the public and the profession.[4] It so happens that all three received lucid expression, although of course they did not originate, at the thirty-fifth annual meeting of the Association of American Medical Colleges in 1925, to the proceedings of which those who may be interested are referred for fuller information than is now timely.

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*Presented before Omaha-Douglas County Medical Society.

1. Preventive Medicine: Dr. Haven Emerson points out that ultimately any movement for the betterment of individual health depends upon the "recognition by the physician of deviations from entire normality prior to the time when the apparently healthy individual suffers inconvenience, pain or disability." His second point is that the full value of ascertained facts in medical science will not be gained until the viewpoint of prevention is an active routine factor in the daily contact of the profession with the laity. Turning then to the subject of the curriculum he recognizes that the purpose of the medical school is the training of the general practitioner, and that preventive medicine requires not so much addition to the curriculum as an altered point of view pervading all departments.

"Most of us have been educated medically on advanced disease, our goal being to make such good use of our special senses and the laboratories, that we can predict what the autopsy will disclose. A new type of competition with nature is due, whereby we may prophesy with at least as much accuracy, how far the adaptable human organism may be strained by adjustments to environment and personal habits without developing abnormal structure and function." Without following Dr. Emerson into details and illustrations of his argument that every department can and should present to students the application of its subjects to health as well as disease, it may be stated briefly that the schools are devoting an average of one hundred to one hundred and twenty hours in special courses on hygiene and preventive medicine, and are endeavoring to stimulate among their instructors an interest in the teaching of prevention as well as diagnosis and therapy.

It follows, therefore, that future graduates will have information and interests that were not part of our training, and as they will increase while we decrease in numbers, caustic references to new-fangled ideas and reminiscences of good old times on our part will seem little more than what psychologists term a defense mechanism, the worst effect of which will be its tendency, to deprive us of the pleasure of participating ourselves in a wholesome and interesting field of endeavor.

The public side of this matter is the widespread positive health movement sponsored by such institutions as the American Foundation for Health, The Woman's Foundation for Health, and many others, down to the recently incorporated Gorgas Memorial Institute of Tropical and Preventive Medicine and exemplified by numerous publications for the laity from such journals as Hygiea, The Nation's Health and Outdoor Life, to leaflets published by the municipalities, states and the Department of Labor and the excellent health booklets edited by the American Foundation for Health and obtainable at the very low price of thirty cents apiece, from their office at 370 Seventh Avenue. Many of these are well worthy of the doctor's attention, both for health information and because the public is reading and basing its demands upon the profession on the information thus acquired. Some of them the doctor could well prescribe to his patients as a part of his instruction in the management of their lives. The periodic health examination is the cornerstone of every health program and it devolves upon the profession spontaneously to prepare to meet this demand or to acquiesce and participate as hirelings in commercial enterprises projected to exploit this growing field of practice.

Now while the technique of the health examination ought not to task the skill or proficiency of the average doctor, it may be questionable whether he is perfectly equipped to give advice on minor conditions which in the past have infrequently been brought to his attention. This at any rate seems to be the opinion of the Oregon State Medical Society, which has formulated a project within its organization for training and qualifying its member in this department of practice. A copy of their plan is in the hands of the energetic secretary of this society. It may be added that The New York State Medical Society has recently issued to its members the Manual published by the American Medical Association entitled, "Suggestions for the Conduct of Period Examination of Apparently Healthy Persons."

2. The second movement here considered was presented in a paper by Charles P. Emerson entitled "Environmental Medicine: Medical Sociology."

It may be stated as a preliminary to reference to Dr. Emerson's paper that to the biologist, organism and environment are so intimately in contact, so interpenetrate one another, that the state of the organism can hardly be adequately described without reference to the environment.

Dr. Emerson after quoting Osler's exclamation in his dispensary "What a pity! Probably not over three out of every ten of these persons will actually get from us the relief they are expecting" states his thesis as follows. "Simply stated, the facts are these: about seven of each ten medical patients, while they need medicine, perhaps operation as well, need also, if they are to recover, some social readjustments or emotional relief. Failing to receive this, our treatment fails."

In Dean Emerson's view the poor are not wholly the victims of hard luck or of unjust social conditions, but often of emotional and intellectual defects. They need advice concerning social and economical adjustments and aid in following it. Nor are the rich free from similar failure to adjust their lives rationally to the complex conditions of modern society. In both, the friendly visits of the trained case worker have a therapeutic effect. And if the aim of the doctor is to get his patients well or adjusted to their disease so that they may attain a maximum social efficiency, he is obligated to use every measure which may conduce to that end.

To illustrate with a case from a local social worker's records. The family came under observation from the report of a school that the children needed clothes. The family consisted of father, mother and eleven children. The only wage earner, the father, when employed has earned one hundred to one hundred and twenty dollars a month. He had an equity of $2000.00 in a house valued at $3700.00, but was behind in his payments and ousting proceedings were threatened. For three months this man had been too ill to work, with gastro-intestinal symptoms; ulcer was suspected. He had visited a doctor from time to time and had been ordered rest and milk diet. He did not cooperate, he worked when he could and ate as he pleased. He had not improved and he owed his doctor over $100.00. It is evident that medical advice alone cannot restore this man to such efficiency as he possessed before he was ill, and a social worker, a relief agency and perhaps a clergyman must cooperate in order to gain a therapeutic result.

Similar problems occur in hospital practice and there is little doubt that therapeutic efficiency could be increased by social work with little or no expense, for while the hospital social service is not a collecting agency, it regularly improves and facilitates collection. The writer has no doubt that in private practice there is also a field for the social worker, as instanced by the case quoted above.

3. In a paper entitled "Psychiatry, Public Health and Medical Education" Dr. Albert M. Barrett outlines the psychological approach to medical problems.

The gist of his position can be ascertained from the following quotations:

"The practice of medicine deals with the human individual in relation with diseases, but in this practice it must take into account that the human individual must be considered as something more than a problem involving structural, physiological or chemical qualities isolated in pathological relations. The human individual has a psychic life through which it carries on its relations with the environment and with the normal and pathological functioning of its own body. It is an organism that feels, thinks and acts. Its ways of reacting have in a large measure been determined by the mutual interaction of the constitutional qualities with which it was endowed and experiences of life. Into the shaping of these have entered most complexly, organic, structural and physiological relations with environmental forces. The results of this have been determined the ability of the individual through its psychic functioning to meet the requirements of life. If these have produced an incapacity, there is presented a problem of disease, quite comparable in its effect to a disability resulting from a somatic disorder."

"The fundamental purpose directing psychiatric instruction should be to give to the medical student an orientation and familiarity with what is known regarding psychic factors and mechanisms and the relations these have to the human individual in health and disease; to give him an insight into the understanding of behavior reactions to the experiences of life; to acquaint him with the technical methods necessary for the acquisition of the data essential for a psychiatric understanding of the patient and how to interpret this; to give him an understanding of the more specific psychoses, reaction and clinical types and to train him in methods of treatment."

The underlying purpose is not to increase the number of psychiatrists but to better the understanding of the personality of the patient as an individual in relation to the physician. I will not labor on this point nor attempt to estimate the volume of work coming under the caption of mental hygiene, or the relation of a knowledge of human behavior to juvenile delinquency, crime and vice, but the recent report of the Boston Associated Charities may be quoted as evidence: they find that thirty-six out of every fifty persons in their lists need psychiatric treatment. And the knowledge accumulating in these special fields has an increasing importance for the general practitioner giving him, to quote again, "methods of clinical investigation and viewpoints that will aid in his understanding of man as an individual reacting in his life's experiences in health and disease; an attitude and knowledge that will have a direct application to his problems as a practicing physician."

It has been our purpose to argue that since trends in medical education are developing in correspondence with widely diffused movements among the laity, the profession should in its corporate capacity take cognizance of, and participate in programs which affect the status of its members and alter the environment in which they labor. There is need for more than passing notice and passive tolerance towards such movements as preventive medicine, social welfare and mental hygiene in the interests of the profession as well as the public, and medical societies can perform a service by arranging contacts, exchange of information and viewpoints between the workers in these special fields and practitioners of medicine. The county society could perhaps serve as a forum for discussion and propaganda both within and without the profession and become a center for education, not only for the physician, as it now is, but of the public as well, by organizing study groups or committees to gather information in these enlarging domains of medicine and along the frontiers where medicine joins with other fields of social work, and from time to time report for the information of the society and from time to time employ publicity, whether in press, radio talk or by a speaker's bureau, for the instruction of the public.

Turning from these general considerations to our immediate local problems there are several matters touching our county and municipal medical intsitutions, which, it is hoped, this society will feel belong to its responsibilities.

The county hospital has been a matter of active interest to the present board of county commissioners by whom many improvements have been made. The Chamber of Commerce through Mr. A. A. Carmichael, chairman of the sub-committee on the County Hospital has been in conference with the Board and suggested a comprehensive study of the needs of the county and a well worked out program for the development of a thoroughly up-to-date institution, to be constructed over a period of years, as funds might be available. The Council of Social Agencies offered its aid in making welfare surveys as they might be indicated, to estimate the load that such an institution might be expected to carry. To all concerned it became evident that as a preliminary to the development of the hospital, the aged and indigent persons of both sexes who are at present cared for at the county hospital should be provided for elsewhere. On the basis of a survey made for them by Major John J. Meehan, M. C.—U. S. A., medical inspector of the Seventh Corps Area, the Public Health Committee of the Chamber of Commerce concurred in the plans under consideration by the bodies before mentioned and advocated the establishment of a separate poor farm with a view of making satisfactory provision for the aged and incapacitated in an institution designed for their use, and at the same time freeing the hospital so that it might develop along its proper line.

At this junction it was found that under state law the Commissioners had not the power to incur the necessary expense either for acquisition of property or the erection of buildings without submitting a bond issue to the people, or seeking enabling legislation at Lincoln.

Here the larger matter rests for the present, but it is evident that whatever alternative may ultimately be adopted there is need of the active interest of the medical profession, both in the planning of the institution and in arousing public interest in the needs of this hospital.

In the course of discussion of this general subject three subsidiary but important items have already presented themselves:

1. Increased provision for the insane.
2. Increased provision for the tuberculous. If the usual provision of one bed per annual death is accepted, the requirement of Douglas County will be at least one hundred and thirty to one hundred and fifty beds. There is also need for further instruction of the public upon hospitalization in this disease so that they may be willing to enter in the incipient stages of the disease and not postpone hospitalization until it can do little more than alleviate the terminal stages.
3. The Juvenile Court is seeking better facilities for the care of minors in its charge who are infected with gonorrhea. Some of them, when the parents are cooperative, can be cared for in dispensaries, but some need to be sent to the hospital for their own sake and the sake of others. A special unit is needed for their reception.

Two hospitals for infectious diseases are maintained by the city. With regard to these Mayor Dahlman has expressed himself to the Public Health Committee as follows:

"Our present Emergency Hospital known as the "Annie Wilson property" is entirely inadequate to meet present demands upon it. The Hospital out on Center Street now being used for smallpox patients, is entirely too far out and is so poorly laid out and equipped that it does not serve the purpose for which it is being now used.

"I believe these two hospitals should be sold and the proceeds derived from such sale be applied toward acquiring another property where all these cases could be handled."

Thus far I have presented in outline the matters being studied by the Omaha Chamber of Commerce through its Public Health Committee and the recommendations touching the County Hospital by its Municipal Affairs Committee. The cooperation and advice of the Omaha-Douglas County Medical Society, I need hardly say, will be appreciated, indeed is earnestly asked.

In view of the helpful attitude of city and county officials and the active interest of the Chamber of Commerce, who have desired that the Omaha-Douglas County Medical society be appraised of these tentative programs, it is hoped that the society will decide to interest itself as a society in matters of community welfare, which require for their satisfactory working out the technical knowledge, the intelligent cooperation and moral support of the society.

It would be but natural in view of the situation thus briefly adumbrated, if the question should arise why not a combined city and county hospital? For this there is no authority in the City charter or State law, but were the question to be treated as it were *in vacuo,* a number of alternatives would present themselves.

1. Either of the corporations involved might own and operate a hospital and the other pay the expenses of its own patients.

2. There might be joint control as in the present merger of the city and county treasurer's office. Such an arrangement has been maintained since the seventies at St. Paul, Minnesota. A report of a Duluth commission upon this institution was obtained by Miss Augusta Bowen of the Public Health Committee, Chamber of Commerce, a copy of which is now, I hope, in the hands of Dr. J. J. Keegan for study.

3. Finally there is always the large question of a merger of County and City. To be attractive to the business man and the taxpayer the arrangement must show saving of expense.

On this point no very helpful information is at hand. Similar mergers to the east of us are too long established and to the west of us too new to give a basis to calculate upon. It is further to be remembered that in the case of institutions becoming inadequate to the needs of a growing community a program of development cannot proceed on the expectation of immediately reducing expense.

It should be kept in mind, however, that any large program involves long planning, organization of ideas and sustained propaganda, for at bottom, any of these alternatives demands a change in social and political habits, and habits change slowly. We are all familiar with the effects of legislation, which runs far ahead of popular sentiment, and I believe it is not pessimistic to say that no form of government, even the city management plan, will function well in the absence of enlightened public opinion and a strong and united community sentiment. It is also to be taken into consideration that medicine does not enjoy an unchallenged claim to leadership in community affairs; indeed we can hardly say that we have the habit and custom of social leadership, for we have been individualistic in our lives and work, and have not yet achieved as a society the solidarity of aspiration that would warrant us in undertaking a very comprehensive program. For all of these reasons we should be rash to expect our fellow citizens to respond to an invitation from us materially to alter their views and political habits in the interests of better health service. Only by uniting our effects with those of public minded citizens in other organizations can we hope to be effective along such lines as these, if indeed, as a society we do determine to intergrade our energies and participate in forming governmental programs at all. To alter our attitude from a defensive against unfavorable legislation into a constructive and aggressive campaign for public health, is as great a change as to add to our activities in the care and study of disease, a zealous interest in promoting the health of patients who are not yet seriously threatened with any named malady; but it is the collective aspect of this movement towards the goal of health.

In any event if we are to maintain our parity with the changing world about us, there is need of intensive study of public and educational movements that affect us as individuals and as members of a profession and on the basis of knowledge and matured thought to participate with discrimination, and lead where our leadership is essential, even remembering that a little real progress is worth more than an Utopian program, which is prematurely launched or is never put in action.

To summarize:

\ The crusade for a positive idea of health is already upon us. Its cornerstone is the periodic health examination, and it behooves us to qualify our members to meet it, especially in the matter of preparing to give advice and to take thought in common for the guidance of this movement.

The intermingling of poverty, disease and vice among the less fortunate of our fellows is so intimate that there is call for interprofessional cooperation on this social frontier, and it is the opinion of many besides the speaker that the experience and insight of the social worker is needed for therapeusis as well as for social salvage.

The municipal and county hospitals are professionally staffed by members of this society, but there is need of activity on the part of the Society to plan for these institutions and to organize public sentiment in their behalf. This requires long and intense study, planning and propaganda, and if it is to be undertaken with any prospect of success calls for committee organization.

REFERENCES

1. Emerson, Haven—Education in Preventive Medicine in the Medical Curriculum. Proceedings of the 35th Annual Meeting, Association of American Medical Colleges, 1925. pp. 36-49.

2. Emerson, Charles P.—Environmental Medicine: Medical Sociology. idem. pp. 13-23.

3. Barrett, Albert M.—Psychiatry. Public Health and Medical Education. idem. pp. 24-35.

DISCUSSIONS:

DR. J. E. SUMMERS: I do not feel like discussing the first part of the Doctor's excellent address with reference to educational matters, preventive medicine, medical schools, and the American Foundation for Health, different educational journals for the public and so forth, particularly the subjects of psychology and the necessity of 36 out of 50 persons using psychological methods to see what they are, where they are, and what may be expected of them, but I can tell you something about the County Hospital and some little projects we have in view.

The first thing — as the doctor said, it is impossible to do anytihng with the hospital until we rid it of the Poor Farm. The matter has been discussed by the county commissioners a number of times. They realize the situation and as far as I am informed, the only thing that can be done is to go to the legislature and get authority to vote bonds to buy lands and erect suitable buildings for taking care of those individuals. As it is, they are a menace to the community in more ways than one. A great many of them are not as honest as might be. They parade around that part of town — I think Dr. Schulte tells me he is visited by a number of them nearly every day, and if you are not looking, some of these unfortunate individuals are quite handy in taking what they want. I believe that is true of only a few. Many of them are good people who have been unfortunate like you and I may be at some time, they feel that it is a God-send to have such a place to go to.

I was surprised when the Doctor told us there are ten thousand families in this community who are more or less dependent on the public not for bread and meat but for professional services. I think the community as a whole, the Chamber of Commerce and the good women of this community, whom we must take into our confidence — they will do more for us than the men, and they will make the men do for us — will be with us if they understand.

We only have, for instance, twenty-four beds for sick women in the hospital. In the men's ward there are two beds where there should be one. Even if all the windows are open there is not air enough for healthful respiration. The place is over crowded. We are doing the best we can for what we have to do with.

We are handicapped out there in that we haven't a training school. Some years ago we had a training school which turned out very creditable nurses. Some of the best nurses in the county came from there. We finally decided that in order to do better work and to make a proper showing in this community we will have to reestablish the training school. In order to have a training school it is necessary to conform to state laws. They require that the hospital be inspected by those in authority in Lincoln, and they will tell us whether or not we are situated and have the things that are required in order that we may conduct a training school. The hospital will be inspected this week and we will know whether or not we can reestablish a training school. The commissioners have told me they will employ a proper superintendent of nurses and so forth and enough heads of different departments for the establishment of a training school if so authorized from Lincoln, and I feel quite confident we will be allowed to do this.

Now, about the tuberculosis building: I didn't realize until I saw the number of deaths that were flashed on the screen, the number of deaths that occur every year in this community. I know a great many of them have died in our county hospital. It is the last place for them to come instead of a place where they can go early and receive some helpful treatment, or some benefit at least. But we can build out there an improvement on what we already have.

Mr. McDonald, the county commissioner, is very much interested in the institution — the other men are, too, but he has been on the board longer than the other members. He knows what can be done and he knows what we need. We have never had a board of county commissioners who were so helpful and willing to do the best they knew how in the interest of the institution.

We can improve that tuberculosis ward. They have brick that came from tearing up some of the old pavements, and perhaps its capacity can be increased two or three fold, and something new built, or what they now have, modernized. That would be something, and it could be built-to later and we would have something worth while.

The insane department, Dr. Young knows more about than I do. I know that it is overloaded at all times. We can't unload into the state institutions; they are full. We have to keep them there, either there or in the jail. They shouldn't be kept there and they are sent out to the county and the place is very much overcrowded.

I don't know what else I can say except we are looking hopefully toward accomplishing something, but we never will accomplish anything worth while until we get rid of the poor farm department.

We have two old buildings, one built in '84 and one before, which, at very little expense, will probably take care of about one hundred patients, so that temporarily, until we saw our way clear to build a modern hospital, we could utilize the present plant until we could build a new unit, and then gradually increase as funds were available. I happen to have a report on the Duluth hospital. It started with nothing and now it is one of the finest institutions in the country. I know a doctor who recently, when asked about it, said, "I just wish if any member of my family was sick they could be taken there rather than to any other hospital in Duluth".

It stands very, very high, and I know of no reason why, with proper cooperation of the medical profession and the public we can't have something of that kind here.

DR. ADOLPH SACHS: I believe we are all familiar with the good work Dr. Summers has done. He deserves great credit for his untiring efforts. He has worked under a great many handicaps and through a great many discouragements. I believe it is one of the duties of this society to cooperate, that is what we are here for. I believe if we back up Dr. Summers we can get a great deal, and that we can have a hospital that will be a credit to the community.

DR. G. A. YOUNG: First, I want to say that Dr. Summers is modest. I have been quite actively identified with the County hospital for the last ten years, and while the County hospital cannot be cited as a credit to the community or the standard of hospital construction and management, nevertheless, the improvement in our county hospital provision for the care of patients in the last four or five years has really been quite marvelous considering the amount of difficulty that Dr. Summers has had to face.

Take, for instance, the psychiatric ward. There are in that ward thirteen private rooms on each floor. We accommodate in those wards anywhere between twenty and twenty-five patients, sleeping the patients in cots in the hall or passage-way. Six or seven years ago we had one attendant in the male ward who was on duty part time, the rest of the time the patients had to pretty much shift for themselves. We have now a very competent attendant for day and night shift on the male ward and a very competent woman attendant for the female ward, and with assistance from the nurses in the sick ward on the other side of the hospital. Whereas, before we never had a history of insane persons, every case that comes in now has a careful history written up by the interne, proper blood and laboratory examinations made, and we have provision for prolonged baths and they really get very good treatment. It used to be, patients' friends spoke of the County hospital as a place where they couldn't bear to think of their friends remaining. It is a commonplace now to have the patients' friends come to me or to Robert Smith and request that their friend or relative be kept there.

The Commission of Insanity has under its supervision an influx of about twenty to thirty-five patients a month. Of those approximately four-fifths are insane persons and the other fifth is made up of drug addicts and alcoholics. Until the last year, or rather the last six months, the State hospitals have been so crowded that it has been extremely difficult to get our patients admitted to the State hospitals, consequently it has been necessary to keep a number of these patients either at home, in private hospitals at the expense of relatives, or at the County hospital, or the county jail. The board has now refused to longer allow patients to remain in the county jail. It has been a disgrace to the community that owing to conditions in the state and county hospitals we have had to keep patients in the county jail at certain times, and the board have simply put it up to the commissioners and they will have to make some provision, so that there will no longer be any patient kept in the hospital room of the county jail.

There has been a great deal of improvement in the county hospital. I might say in reference to the plumbing that while it isn't the best, it is clean. There has been an immense amount of housecleaning and painting in the psycopathic ward so that provisions for the care of patients is at least fairly good and compares quite favorably with that given in some of the more disturbed wards in the State hospital.

Our trouble there has been that about three-quarters of the patients in the psychopathic ward at the present time are senile dementias. This is very descriptive of the condition and they are really a great detriment to the care of the ward. For Omaha and a county of this size we need at least two wards, each twenty-five patient capacity, and these senile dementias, which the state hospitals absolutely refuse to take off our hands, should be kept in a separate department.

I don't know that there is anything more than I have to say except that it is very interesting to me to hear Dr. Schulte's remarks on the question of psychiatric development in medicine. I think the pivotal point is this: From the psychological standpoint we must learn to emphasize psychologic matters not alone in the somatic relation of the individual but we must emphasize the relationship between the individual as a working entity and his environment; we must learn to evaluate the value of the patient and the environment and teach him to make the best evaluation possible between his cravings and his environment, and right there, as a final word, I would like to recommend to those of you who do have time for reading, I want to cite the magazine called "Mental Hygiene" published by the National Committee of Mental Hygiene in New York. It is a quarterly magazine and probably gives as no other magazine does, a cross section of the work being done in psychology today both in reference to psychiatry and neurology and in relation to social hygiene.

DR. J. JAY KEEGAN: I don't believe I have much to add. I have been interested in the periodical health movement and the various side issues of that which are developing at the present time. The medical profession is sometimes alarmed at the trend toward state medicine. I think there is occasion for concern in the medical profession because a great many activities are taking over the function of the physician; I don't believe they are going to do the medical profession any particular harm but I do believe it is going to cause a movement that will cause us to find some way to harmonize the welfare of the medical profession with this tendency and demand of the public for medical service, public health service as exemplified by periodic medical examinations, and other movements. Those movements are before us and they can't be wished away or waived aside. We will have to meet them some way or other, and I think one of the faults of the medical profession has been to ignore for too long a time the demands of this kind. Witness the growth of the cults: Christian science, and other cults, which have fulfilled the demand of the public. The medical profession stands aloof from movements of that kind and then finally comes in and says they are worth something, there is something serviceable there. It should be a leader. I think this movement for periodic health examination should be taken up by the medical profession in such a way that the medical profession can step in and be leaders in the movement instead of reluctant followers.

DR. E. W. POWELL: It takes a long time to tell the story of the Douglas County Hospital. There are so very many amusing things, so many real things, so many important things that it takes a good long time.

I want to say one thing about medical education before I talk about the hospital. I hear it in anterooms, and on the street, and everywhere. People are prone to criticize, to say that we don't have as many good doctors today as we used to. I believe fundamentally they are making better doctors than they ever did. The only thing is that medical education is like everything else, it is in the turmoil of trying to do things better but they don't know just where they are going to land. Ultimately they will land right. There is only one criticism I think is just and that is the expense of medical education. I think it is too expensive for the average individual to study medicine right and I think something should be done to minimize the expense of obtaining a medical education. That is one of the real criticisms. I think ultimately the men who are going out today are fundamentally sounder and better — they ought to be better doctors than the men of 25 years ago.

About social settlement workers. Their only trouble is that there are too many of the wrong class in the work. We are too busy with our own business to support them as they should be supported. They need guidance — they need help, and if a few help they are criticized that they are getting special favors. I think you will find that is the criticism, selfishness. Naturally, doctors are selfish. They live within themselves and a few patients. And they are like a lot of old women, they talk about things they shouldn't talk about; they fight each other when they ought to be supporting each other, and when they want some real thing done in the community and one or two real workers get out and work for it and about seventy-five per cent of the crabs get out and fight them instead of jumping in and making the proposition real and all of them deriving a real benefit from it. They say "there is another one, it will blow up. I tell you I wouldn't put any money in it." This is real fun now. You will laugh but I want to tell you this: The best medical building is going to be built in Omaha. It's not going to be built by the doctors who invested seventy thousand dollars. No, the men who put the seventy thousand in, didn't get the Medical Building, but Omaha is going to have a very creditable building, it is going to be the finest structure in town. I want to leave that with you, and you might have owned it if all of you had come in, and you might derive the benefit thereof.

Now, getting down to this meeting: I appreciate Dr. Schulte's paper, I think it was a very dandy one, well prepared, and he has that very nice manner of presenting it, and that very polite sarcasm for this community in which we live, that needs a lot of it. I don't know of a city in the United States that needs a county and city hospital quite as badly as Omaha. But as far as this city is concerned, under present conditions, gentlemen, forget it. They haven't a cent in the world to do anything with; they owe the county a lot of money now, have owed it to them for a good many years and they will never pay it. I think they ought to sell the pest house and the so-called City Emergency hospital and pay their debts.

The first thing to do, if you want to promote anything is to establish a good credit, then you can get a lot of money if you have credit.

Any project that is needed so badly as a county hospital is needed in Omaha, cannot be put across without money and definite provision. I know that a long program doesn't take well, but it does if the right propoganda goes with it. I know just the position the commissioners are in and as Dr. Summers has said, we have, I think, the best commission perhaps we have ever had. They really want to do something but they have to face the financial condition. The thing is sticking in front of them all the time, finance, finance, finance, and that goes everlastingly with them. Their hands are tied.

You say things are very much better now than they were. They are. But if you knew the effort of every member of that staff day in and day out, week in and week out, and months and months and months, to acquire the little things that we have got, and the worst thing we have had to contend against was bad management, bad management, inefficient help in every department. Fortunately we now have a very competent medical man who has a position — I don't know what the title is, but he is resident physician, who tries very hard every day to do the very best he can for the patient, who is tired out every night, and sick at heart, trying, trying, trying.

I believe if there is anything you want to do it is this: Have a definite program. Someone said sketches and blue prints don't amount to anything. Well, I think sketches and blue prints do mean a lot, and they go big.

The Douglas County hospital was built between the years of 1880 and 1888, when we had a population of about a hundred thousand people, and Douglas County hospital, now, excepting for the inmates, is the same as it was then, and we have considerably over two hundred thousand now. That is one of the faults with the Douglas County hospital. It is just where it was in 1880. And we have doubled our population. Think of it! Twenty-six beds in the women's ward. Eighteen private beds in which thirty-six old women combine right with your sick wards.

And the worst thing is this: Business men are not interested in the county hospital and you can't get them to talk about it because it has got such a bad reputation. They don't want to talk about it. I don't blame them. I think the thing to do is separate them if you can — I don't know whether you can separate them — but don't try to put them to work on the poor farm because they won't fork. Until you have an entirely different law throughout the state, and until we spend enough money to hire competent help, a man with power enough to regulate them, take away tobacco from them, and all they acquire, honestly or otherwise, and make them pay in hours of labor — those that are able. That is what they do in an institution that is well regulated. Inmates ought not to be able to leave, if they are charges in an institution they should not be able to leave without an order. They should not be allowed to go out and stay out three or four days. I know of men who lived in the county hospital for four years in the winter time and worked at the Country club in the summer for sixty dollars a month. That doesn't happen any more, but it leads to the point of discipline, and that is what is necessary in every institution of this kind. We have got to control them.

So I say let's have a program laid out like this: An administration building laid out here on a blue print, a tuberculosis ward here, beautifying the place. Another ward over here, a surgical ward back of this, a medical ward over here. And here a power plant, and a laundry in separate buildings, and make it attractive, make it so everybody in the community when they have visitors come will want to drive around and see it — show it as a beauty spot of Omaha. This is where we take care of our poor and then you will get to a point where you are going to do something — this is the way Omaha takes care of its poor; this is the way Douglas County takes care of its poor.

And we want to build something that is adequate, and I say it will be better if we start on a program laid out for twenty-five or fifty years, and that is the only way. But build that administration building, build the nucleus of this thing, and then next year make a mill levy of so many mills for building, for construction, and another levy for maintenance, then the county commissioners are not making up a pot which is indefinite, have a fund laid out by mill levy which is adequate to take care of the needs, a levy for building and a levy for maintenance; build one building this year and next year another, and the next year still another, and on a program that looks like something, and if there is any site in any city from every angle that you want to pick that is the equal of Douglas county's present site, I want to see it.

A few years ago we tried to get something started out there, and I will say that at that time, four or five years ago, this wasn't the worst place, but it was the dirtiest one I had ever seen. That is greatly improved and the men working out there and the commissioners deserve a lot of credit.

Now the first thing, let's lay out a program and back it up, I don't care if it does cost money. We are living in a world of progress and advertising, and the only really dead issue in the medical profession is the lack of it. You can talk about the chiropractor and the osteopath selling themselves. How do they do it? He sells himself with the power of the press, that is the only thing. He doesn't sell himself because he is smarter than you are. There is only one way to beat him at his own game. I honestly and truly believe if we could put on an advertising campaign ourselves we would kill all the cults in the territory. But we won't do that. But here is what we can do: If we will all band together and if we will put on a committee that will get in and work and work every day, ram it down their fellow-men's throats, give it to them so hard they can't help but see your side, lay out a program and give it the support of the Society, submit sketches and blue prints on a real plan that looks feasible, have a plan for every facility out there, a plan for a modern hospital, and live it every day, in a few years, I am telling you, you can call your medical friends, and all your social friends, as well, out there and point with pride and say this is the resurrection of the dirtiest, filthiest, most laughed at, picked to pieces, lambasted, institution Nebraska ever had. Criticizing isn't going to do any good. The best thing to do is to make it better. Remember, "United we stand, divided, we fall".

DR. W. N. ANDERSON: There are a few lessons in tuberculosis we might learn. One thing I do want to call attention to and that is this fact: That in the examination of troops in the army, men between the age of twenty and thirty, already examined and passed by the local draft boards and sent to camp, one out of every one hundred had active tuberculosis.

Revolve that thought for a moment. Those of us who see an ordinary number of patients, perhaps we might estimate we see from two to three new cases a day, in two months time we see a hundred new patients. You who are seeing that many are seeing one active tuberculosis case, and probably more, because you are dealing with individuals who come to you sick, instead of well individuals, who have already been culled over.

It seems to me I don't need to dwell on the question of early diagnosis of tuberculosis. I have had the experience in the last three years of not being able to tell but five patients they had tuberculosis without them already having known it themselves; and having been previously told. Therefore, my problem is not early diagnosis at all because in the patients I have seen the diagnosis was already made.

The burning question today is the proper management of tuberculosis cases. The patient has been told the wrong thing to start with. Their start has been in the wrong line and they eventually have exhausted their resources in seeking the wrong line of treatment and they must end inevitably in some place where they can be taken care of. We have in our state a tuberculosis sanitorium and those who have had much contact with the State Sanitorium are much disappointed. This is not a criticism, but the fact is there is not enough money to get the proper management and cases that should be in bed for a long time, the moment they get temperature free are put to work; consequently cases coming back have to be taken care of. It is no longer feasible to send to a different climate for treatment because springing up all over the country are tuberculosis sanitoriums for the care of the people. If you mix the reports of all these sanitoriums up like you would shuffle cards, and pick them out, you would find out you get just as well one place as another, whether you get twenty-six inches of rain fall or 365 days of sunshine, provided you get a long enough rest. The first problem is rest, and secondly, not early diagnosis but proper management and proper care. In this county there is a necessity for a county tuberculosis hospital and one thing they say about the County hospital is the fact that they don't want to go out there to die with the rest because almost every patient that is sent out there dies, because it never reaches there until the end. Tuberculosis cases are different from any other; hospitalization is necessarily longer than any other one. The ward should be a sightly one. It ought not to be particularly expensive at the present county hospital to enlarge and change the present ward so it would be entirely satisfactory. We should have, I believe, facilities for the care of at least one hundred tuberculosis cases. When patients come to us from families, from those people who can pay, they can be cared for by us under exactly the same maximum of absolute rest in their home or elsewhere. This is not a plea to lessen your revenue from tuberculosis patients but to place at the disposal of people who have tuberculosis a place where they can get well instead of a place to die.

KIDNEY AND BLADDER INFECTIONS

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The following discussion is based on the study of one hundred cases of urinary tract infection. Infection by the tubercle bacillus and infections accompanying malignancy are not considered.

It is my conviction that infections of the kidney do not exist without a concomitant infection of the ureter and bladder, likewise, in the average case, bladder infection does not exist without kidney infection. The two are almost always interdependent. You will note that I have not chosen to limit this discussion to the sterotyped, yet so loosely and often meaninglessly used terms, cystitis, pyelitis, pyelonephritis, and pyonephrosis.

Cystitis does not exist unless caused by something and that something is usually a bacterial invasion from the kidney. Pyelitis as an entity does not stand alone, but is accompanied by parenchymal involvement to a greater or lesser extent—and from pyelonephritis to pyonephrosis is a progressive gradation in degree. One should not properly picture in his mind any phase of urinary tract infection as a disease per se, but must, in justice to the patient, recognize the anatomical continuity of the pathological process.

It has not been so long since, and is unfortunately still too much in vogue today, that the profession has had to rely entirely upon clinical symptoms, on urinalysis, and occasionally on x-ray finding, with all too frequently an exploratory operation to determine the exact pathology. With the advent of the cystoscope, the diagnosis and treatment of renal infections has been taken out of the realm of uncertainty and put on a firmly established basis.

In the discussion of this subject, it would be amiss if I did not emphasize the absolute necessity of a more careful differential diagnostic study of intra-abdominal as well as kidney lesions.

It may be assumed that I am presenting the study of these cases from the urologist's point of view. This I will grant, and offer no apology for it.

Infections of the urinary tract are eternally with us, and just so long as we continue to ignore them and routinely explore the abdomen before determining the offending pathology, then just so long are we going to have that surgical aftermath of a persistent post-operative chain of symptoms.

It is only by close collaboration between the general surgeon and the urologist that the problem of these infections can be solved.

In this series of one hundred cases, 65 were females and 35 were males—of which 40% gave a history of having had their abdomens opened from one to four times on clinical diagnosis with no relief of their primary symptoms until attacked by the urologist. Of this lamentable situation, there is sufficient corroborative evidence from most any active hospital service in the country. A sad testimonial to the manner in which we work out our cases. In point of symptoms, those of longest duration extended over a period of fifteen years—while those of shortest duration had been subjected erroneously to an emergency appendectomy or gall bladder.

A case in point is will illustrated by the following report:

Mrs. G., a young woman of thirty-two years, was taken acutely ill with epigastric pain, vomiting, chills, and high fever. She was sent to the hospital as an emergency surgical abdomen by her attending physician who called a very good surgeon into consultation. Upon clinical findings the surgeon confirmed that the abdomen should be opened. The clinical preoperative diagnosis shows on the records as acute gall-bladder disease. White blood count was 18,000, and the urine contained pus cells and red blood cells. The following morning the abdomen was opened; a normal gall-bladder was found and the appendix removed. For more than eight weeks following, this patient battled her septic crises, until all other efforts exhausted, the urological department was called upon to investigate the urinary tract. Whereupon a diagnosis of perinephritic abscess was rendered. Operation revealed an extensive kidney infection and a large sub-capsular abscess.

The paradox of this case is that from the very beginning this patient had those criteria—pus and red blood cells in her urine—which should have primarily called for a urological examination before any other course should have been considered.

ETIOLOGY

Infection in the urinary tract naturally presages the fact that we are dealing with a bacterial invasion. The chief sources of this invasion are:

(1) Those remote foci of infections, i. e., teeth, tonsils, sinuses, and skin and bone.
(2) Bacteria from the alimentary canal.
(3) Adjacent infected adnexa and urethra.

Of the organisms, it was found that the various strains of streptococci, staphylococci and the colon bacillus were the predominating bacteria with the two former taking supersedence.

My records show that in 72% of those cases definite remote areas of focal infection were elicited and eradicated on the assumption that such foci were, potentially at least, contributing to the urinary tract involvement.

Ureteral kinks from renal dystopia, ureteral strictures and obstructions such as from calculi, uterine pressure, etc., seem definitely to be important contributing factors, in the presence of an existing infection, to bring the issue to a climax. Twenty per cent of the cases show some sort of ureteral obstruction. I cannot agree with Hunner who places ureteral stricture as the paramount offender in the role of upper urinary tract infections. That strictures do exist in a small per cent of cases we must admit, but certainly not with the frequency Hunner would lead us to believe.

Peculiarly in this series all cases showing ureteral calculi, in the presence of renal pyuria, were associated with a remote focus in contact with bone—apical abscesses, sinus infection, or osteomyelitis.

That the route of invasion to the kidney is chiefly by the blood stream is no longer questioned with the lymphatics and direct ascent of the ureter establishing pathways of lesser frequency.

DIAGNOSIS

With our knowledge that 40% of this series of cases have had their abdomens opened with no subsidence in their predominating symptoms until relieved by the urologist, it should make us conjure the word, diagnosis, very carefully. It is my belief that in every potential surgical abdomen, sufficient careful judgment should be exercised, at least, to rule out the kidney before opening the abdomen.

Pus and red blood cells in a catheter specimen of urine are products of renal inflammation and should be the primary target of investigation before proceding farther. The temperature in urinary tract infections is usually by steeple rise. It is higher than other temperatures with a lower pulse rate, and is not infrequently accompanied by a chill. Pain and tenderness, while very frequent complaints, are unreliable signs. They may be referred. Muscle spasm usually accompanies peritoneal inflammation and is significant of an intra-abdominal lesion. Nausea and vomiting are usually present in abdominal infections, less so in renal involvement.

The blood picture in renal infections varies with the acuteness or chronicity of the condition. In the chronic cases the leucocytes are not materially elevated unless during an acute exacerbation, and then there is a marked leucocytosis, ranging from 10,000 to 18,000. As a rule acute inflammatory lesions which involve the peritoneum present a higher leucocyte count than similar affections of the urinary tract.

The most prominent symptom complained of was urinary frequency. Eighty-five per cent of this series presented this symptom, while the two symptoms of back or side ache and painful urination followed serially in order with 60 and 30% respectively. Gross hematuria was noticed by the patient in only 10% of the cases, while microscopic red blood cells were evident in 30%.

A careful history, physical examination, together with laboratory findings, will usually make a diagnosis of urinary tract infection. With the means of the cystoscope the extent of the infection can be escertained, whether one or both kidneys, the functional ability can be elicited, and with the adjunct of pyelography a definite picture of the deviation from normal can be presented. To the trained interpreter this latter procedure is one of the most valuable adjuncts in the realm of diagnostic urology today. Another valuable diagnostic point in that of first percussion over the suspected renal region. It will be positive in 90% of involved kidneys. Do not be content with a voided specimen of urine, but base your findings upon that obtained by the catheter only.

TREATMENT

The treatment of these infections resolves itself into several factors. The acceptance and recognition of which are paramount if success is to be achieved.

These factors fall into five groups.

(1) Eliminative.
(2) Medicinal.
(3) Removal of focus.
(4) Ureteral drainage.
(5) Surgical.

Eliminative treatment consists of rest in bed, forced fluids, proper catharsis and regulation of diet. A diet low in protein with avoidance of condiments and rich food is best.

The medicinal factor naturally pre-supposes urinary antisepsis. During the last decade numerous drugs have been offered as sterilizing agents for the urinary tract. Some better, some worse, but probably no one of them without some merit of value. Among the most universally used is urotropin in the presence of a strongly acid urine, its action insured by the administration of acid sodium phosphate. In some cases in the presence of an acid pyuria better results have been achieved by rendering the urine alkaline in the presence of one of the more recent dye compounds—acriflavine.

The alternation of acid and alkaline treatment is at times strikingly beneficial. There can be no question but that mercurochrome, although not always devoid of toxic effects, will react to a very good advantage at times when all other medicaments seem to fail.

Very often what appears to be definitely a surgical kidney can be saved from an operation by the judicious use of mercurochrome. Of more recent date, hexylresorcinal has been placed before us, and heralded as an ideal urinary antiseptic. Properly administered this compound does exercise very marked sterilizing qualities with a minimum of toxic effect. Hexylresorcinal must be gradually pushed up over a period of ten to twelve days, from one t. i. d., p. c. to the limit of the patient's tolerance, three or four t. i. d., p. c., and held there until the urine returns no culture. The water intake should be kept at a minimum throughout this period of treatment. This drug must be pushed to saturation or it becomes ineffective. Withal it should be kept in mind that total reliance should not be placed upon any medicinal procedure to the exclusion of other adjuncts.

A very exhaustive search should be made in every case to determine the source of supply behind the urinary tract infection. In so far as possible all infected foci should be removed. In this series 72% had demonstrable focal infections of which only three patients desired to harbor their infection rather than have it removed.

Ureteral drainage is the factor sine qua non in getting directly at the inflammatory process. The catheter can be passed directly to the kidney pelvis. In this manner surgical drainage is established just as a tube drains an abdominal abscess. Through the catheter the inflamed kidney pelvis can be lavaged. Silver nitrate is undoubtedly the most acceptable agent because of its deeply penetrating qualities. This can be repeated as often as necessary if the catheter is left in situ.

From the foregoing factors it will be readily sensed that our attitude should be as conservative as possible in so far as compatable with the life of the patient.

A proper observance of these factors will, I believe, materially reduce the surgical kidneys of the future. Surgery is the radical procedure and should be avoided unless necessary, and even then should be shrouded with conservatism. The hopelessly destroyed kidney should come out. But where it is possible to conserve functioning kidney tissue then this should be done.

Six cases in this series were subjected to surgical intervention. Four were nephrectomies for large pyonephrotic abscesses and two were drained. One by nephostomy and one with sub-capsular abscess was decapsulated and drained. One nephrectomy died—undoubtedly due to too much surgery at one time. A primary nephrectomy was enacted for a massive pyonephrosis, where if drainage had been instituted with a later nephrectomy, the case would probably have survived.

The case drained by nephrostomy—surprisingly, healed, but it is not known whether the remaining kidney tissue is functioning or not. Suffice to say the patient is apparently well today. In this series there were about 90% cures and 1% mortality.

SUMMARY

1. About 40% of patients with acute or chronic infection of the kidney have their abdomens opened unnecessarily.

2. The role of chronic focal infections in their relation to urinary tract infection should be recognized.

3. A more careful differential diagnosis with recognition of the indications for free use of all urological diagnostic measures is urged.

4. Conservative medicinal measures and ureteral drainage will save many cases from surgical intervention.

5. Surgical measures when necessary, but as conservatively radical surgery as possible.

THERAPY OF NEPHRITIS*

M. C. HOWARD, M. D., OMAHA, NEBRASKA.

During the metabolic activities of the body the kidney performs a very important function in eliminating a number of substances, which, if retained in the blood stream, would not only be useless but lead to serious consequences. The kidney must also be able to maintain a normal acid-base equilibrium as regards those non-volatile products which are being continually formed in the body. The means at the disposal of the kidney for such a function is found in its secretion, the urine. This contains, as a rule, the various salts, the by products of protein metabolism, unknown toxins and water.

For the kidney to carry on its work in a normal manner, certain conditions must be present. The kidneys should be anatomically and functionally intact. By this, one does not infer that a damaged kidney is unable to perform its work, but that when sufficient kidney tissue has been destroyed, signs of functional inefficiency will occur. A second condition is that those organs and tissues which offer substances for elimination must be normal. The third is a heart and vessel system capable of supplying to the kidney adequate nourishment for the renal epithelial system, besides furnishing the products which are to be eliminated. Hence the type of blood flow through the kidney will have an influence both direct, and indirect, on the quality and quantity of the urine produced.

These introductory remarks have been made merely that the question of therapy may be handled in a more satisfactory manner. In the treatment of kidney diseases we are confronted with various problems, and these problems, as we see them, are supplied either by the symptoms as we know them or by the complaints as outlined by the patient.

In considering renal therapy we must first of all take into consideration certain etiological factors. At times causes are actually present, or they may later assert themselves as the underlying agent in the nephritis. Some of the more common causes may be associated with certain infections such as scarlet fever, diphtheria and pneumonia. In regard to scarlet fever the nephritis may develop at two stages of the disease: Either during the course of the fever; or about three to four weeks after the termination of the infection. In these latter cases, it is a therapeutic measure to warn the patient against any undue exposure. By so doing we minimize the chances for the onset of a severe nephritis.

Another etiological factor is an active or recurring upper respiratory infection where some degree of parallelism can be shown to exist between the nephritic symptoms and the infection. When such an infection occurs it would be useless to treat the nephritis and at the same time disregard an active focus in the tonsil or one of the accessory sinuses. The same rule holds true for other foci of infection whether they be present in teeth, gall-bladder or other viscera.

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*Paper read at (1) Annual Meeting of the Third Councilor District, October 29, 1925, Auburn, Nebraska, (2) Dawson County Medical Society, December 11, 1925, Gothenburg, Nebraska.

A second consideration in the treatment of nephritis, deals with the question of an albuminuria. We are frequently called upon to decide whether or not an albuminuria means nephritis. We are in a quandary since we realize that although in a number of cases such a finding is suggestive of nephritis, in a smaller yet significant number of cases it does not. An albuminuria may be present, yet the functional activity of the kidneys be normal.

This problem was debated at length during the late World war, and the following conclusion was reached by British investigators. They selected for observation a number of soldiers whose urine showed constant presence of albumen. These soldiers as they were sent into the trenches, were checked and rechecked a number of times on their urinary findings as well as on the functional activity of their kidneys. Under very adverse living conditions those suspected of nephritis were not more susceptible to a true nephritis than were their comrades. In other words, a simple albuminuria, with no signs of any functional deficiency, may be considered a benign affair.

Dietetically it is not possible to influence the amount of albumen found in these simple cases of albuminuria. I have put such patients on low protein diets and have observed very little effect on the daily output of albumen. Such diets if persisted in would eventually lead to the use of body protein with its consequent effects. In my experience low protein diets are only of value in cases of nephritis with marked hypertension, and particularly those with evidence of nitrogen retention.

At times one may desire to use various salts to render the urine more alkaline, and as one would be led to suppose, less irritating to the kidney. With the use of an alkali, such as sodium-bicarbonate, there may be a pseudo-reduction in the amount of albumen in the urine. I say pseudo for the reason that if this urine is strongly acidulated before adding the Esbach reagent, the same amount of albumen will be found as there was before the use of the alkali.

All that one may say in a case of simple albuminuria, in the absence of any functional deficiency of the kidney, is that such a kidney may be a "locus minor resistens" in the body. As a consequence, we must protect the kidney by the adequate removal of all active foci of infection. In addition we must have periodic examinations made to check any variation that may occur in the normal functional activity of the kidney. Other than this one can do very little to alter this almost constant finding in certain patients.

A third factor in the treatment of nephritis, is that associated with oedema and its counterpart oliguria. For many years the causation of oedema in nephritis has been widely discussed. One explanation for this phenomenon has usually been the inability of the kidney to eliminate sodium chloride and water. This is a purely renal theory. Recently such men as Eppinger of Vienna and F. M. Allen of this country have supported an extra-renal theory as the cause of oedema in nephritis. Eppinger is of the opinion that there is an intimate relationship between the vascular system of the kidney and the vascular system of the body as whole: that in certain instances where there is a derangement in the functional activity of the renal capillaries, there also seems to be a derangement in the capillary system of the body, especially that associated with the loose subcutaneous tissues. This supposition applies when one is dealing with sodium chloride metabolism.

In his lectures Eppinger states that when an oedema occurs in nephritis, it may be explained in the following manner. The vascular system is able to take up the sodium chloride from the food in the gastro-intestinal tract. As this salt is carried to the various tissues of the body it is normally deposited in the intra-cellular spaces. However, when its role of usefulness has passed, this salt (sodium chloride) is unable to pass back into the blood stream. Where this occurs there is a partial retention of the salt. This salt in turn retains sufficient water to maintain itself in solution. Thus a renal oedema takes place. This sequence as outlined he attributes to a general vascular breakdown, wherein the salt is carried to the tissues in a normal manner, but once it has reached the tissues it has difficulty in gaining readmittance to the blood stream.

If such is the case the method of procedure in renal oedema would be to limit the daily intake of sodium chloride. This both Eppinger and Allen advise and the results achieved at times are phenomenal. The lowered salt intake will force the body to supply and use the sodium chloride stored away in the oedematous tissues. As this salt is gradually reabsorbed the water retained with it will also pass into the circulation. Both of these substances are now passed on to the kidneys, there to be eliminated. Such a diet can be compiled from any standard book on diets, wherein the sodium chloride content of the various foods is given. In my own work I attempt to lower the ingestion of sodium chloride to a maximum of two to three grammes daily. The amount of salt in the usual dietary contains ten to twelve grammes.

In addition to the salt free diet, there should be a reduction in the fluid intake. The amount of liquids should not exceed five to six hundred c. c. per day. With this sharp reduction in fluid intake patients will complain very little of thirst. Allen explains this by saying that the thirst in most instances is due to a high concentration of salt in the tissues. If this salt is minimized by a restricted diet, there is less desire for a large amount of water, and as the salt is reabsorbed from the tissues and excreted the excessive thirst gradually disappears.

In retractive cases we may resort to the use of one of the many diuretics at our disposal. Personally, following the teaching of Keith and others, I have had some very striking results with calcium chloride and ammonium chloride. The manner in which these drugs produce such a free diuresis is unknown, but empirically they are of great value in the renal oedemas. These drugs should be given in four to six gramme doses each day. They appear to be fairly well tolerated if administered after meals, and especially when given in capsule form. Their action seems to be greatly increased when combined with a salt free diet. Novarsuro, a new mercury diuretic, is to be used with some degree of caution. This is especially true in the chronic glomerular types of nephritis.

If there is any evidence of a failing heart muscle, digitalis may be used. My experience with this drug is that, where there is a cardio-renal factor complicated by a mitral lesion or a marked irregularity, the results are very good. Otherwise the action of digitalis in such cases is to say the least at times disappointing.

The following case reports will illustrate the results in three different types of nephritis.

Case 1. History—Miss H. P., age 19, white, entered St. Catherines Hospital complaining of weakness, dyspnoea, swelling of hands and feet. Examination showed evidence of oedema in soft tissues, a pallor-two plus, pulse 92, temperature 101, blood pressure systolic 140, diastolic 90. Urine specific gravity 1035, albumen two plus, red cells and granular casts two plus. Diagnosis—acute glomerular nephritis. Treatment—salt free diet, fluid intake limited to 600 cc. Three days later all signs of oedema had disappeared. Ten days after admittance temperature normal, urine free of albumen and casts, systolic pressure 118, diastolic pressure 78.

Case 2. History—Mrs. B. T., age 54, colored, entered St. Joseph Hospital, Nov. 15, complaining of shortness of breath, headache, and a generalized oedema. Examination showed evidence of a marked arterio-sclerosis, heart enlarged, a systolic murmur at the apex. Systolic pressure 230, diastolic 140. Fluid in abdomen and right chest. Weight 205 pounds. Urine specific gravity of 1012, albumen one plus, hyaline casts one plus. Blood urea 22 mg-ms. Diagnosis, general arterio-sclerosis with a myocardial degeneration. Arterio-sclerotic nephritis. Patient placed on general diet with no restrictions. Urinary output in twenty-four hours was 890 cc. Now placed on a salt free diet, fluid intake of 450 cc. Tr. digitalis four cc. and ammonium chloride five grammes daily. Urinary output increased to a maximum of 7,200 cc. on the fourth day. This gradually decreased in amount to 1500 cc. on the eighth day. Her weight at this time was 148 pounds, a total loss of 57 pounds. This weight was maintained up to the time of dismissal when she was symptom free. However, she still carried a hypertension, the systolic pressure being 210 over 120.

Case 3. History—Mr. S., age 31, white, entered St. Joseph hospital, complaining of weakness, dyspnoea and dimness of vision. Five months previously he had suffered an attack of scarlet fever. Several weeks following this he had noticed a tendency to puffiness of the eyelids, hands and feet. Six weeks later complained of failing vision. These symptoms had gradually increased up to the time of his admittance. Examination showed patient to have a marked pallor, and oedema of skin and soft tissues, pulse rapid and irregular due to extra-systoles. Blood pressure systolic 210, diastolic 120. Blood urea 16.5 mgm. Haemoglobin 65, red cells 3,680,000. Urine specific gravity 1016, albumen three plus, red cells two plus, granular and leucocytic casts two plus. Weight 166 pounds. Patient placed on a general diet with no restrictions. Fluid intake 1480 cc. Urinary output 1500 cc. Now put on a salt free diet, fluid limited to 600 cc., and ammonium chloride five grammes daily. The urinary output increased to 1970 cc. for a maximum, then fell to 1200 cc. on the eighth day. The body weight at this time being 148 pounds, a total loss of 18 pounds. The urinary findings and blood pressure readings were unaltered, although signs of edema were practically negative.

From the above reports it would appear that the order of procedure in the treatment of a renal or a cardio-renal oedema, would be as follows. Place the patient on a salt-free diet, limit his fluid intake to a minimum, and make use of the diuretics and the cardiac tonics as indicated. If these conditions are fulfilled, a considerable advance will have been made in lessening the oedema, and ridding the patient of the disabling symptom.

The above data I have found to be of clinical value, and well worth a trial in handling the various types of nephritis. In conclusion I believe the following facts are worthy of repetition.

(1) Every active nephritis has a focal cause, hence remove or alter this causative factor at some stage of the disease, if this is at all possible.

(2) Simple albuminuria in the absense of a functional renal deficiency, as a rule, spells no nephritis.

(3) Renal oedema is best treated by a diet low in salt, and when necessary, it should be augmented by the use of certain diuretics or cardiac tonics.

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A NEW DRESS: NEW TYPE

With the current issue The Nebraska State Medical Journal appears in new type. We hope you will like it, for we think it is a vast improvement over the type heretofore used in the Journal. The four members of the Publication Board together with the printer were a unit in selecting the type herewith.

We have always felt that The Nebraska State Medical Journal, in typography and mechanical execution, was above the average of state medical journals; but we have also cherished a desire for some time to improve the appearance of the printed page. An accommodating printer and a three-year contract have made this possible.

Heretofore the enthusiastic and emphatic author has not been able in this Journal to express himself in italics. He may now do so.

THE FORTHCOMING OMAHA MEETING

By the time this article attracts your attention, the next meeting of your Association will be only one month in the future, and this is written with the hope that the writer can interest you enough to induce you to attend this meeting. The Committee tries each year to make the meeting the best ever held and from the present plans the writer feels that the committee is this year justified in making this claim. Not only will the scientific program be of unusual interest, but the business matters to come before the House of Delegates should be considered by every member. The delegates always try to do what is best for the entire Association and they can only do so by hearing from you, and you can best form an opinion if you are on the ground. Periodic Health examinations, Publicity and Medico-Legal Defense are all items of interest to you and they are all to be up for consideration at the next meeting.

Decide now to be at the meeting, and begin making your plans, so that when the time comes, nothing can prevent you from being present.

—R. B. Adams, Sec.-Treas.

DUES

On April 1, 1926, due to a rule of The American Medical Association, it becomes necessary to report every member who has not paid his dues, as delinquent. This means that during the time a member is delinquent he loses his Journal, his defense rights and his right to take part in the meeting. If you are one who has overlooked paying your dues, send $8.00 plus your local dues to your County Secretary at once and this will reinstate you.

—R. B. Adams, Sec.-Treas.

NEBRASKA SECTION, AMERICAN COLLEGE OF SURGEONS' MEETING

Two hundred members of the Nebraska profession, with a sprinkling of Iowans, attended the sessions of the Clinical Congress held at Lincoln, February 23-24. The program as worked out was fully up to the standard set by previous meetings. The interest of the profession was maintained throughout the sessions as evidenced by the attendance at all times. The spirit of good fellowship, which means a lot to most men, prevailed everywhere.

Operative clinics by Lincoln surgeons were given at five hospitals, their schedules full almost to overflowing, and including the usual variety of operations from tendon transference to goitre operations, herniotomies, transfusions, etc. Dr. Arthur Steindler, professor of orthopedic surgery, University of Iowa Medical School, did a spinal fixation operation at the Lincoln General hospital.

The hospital conference, featured by pointed and illuminating discussions, occupied the time of the first afternoon session. After listening to the fullest discussion of this problem one must be almost, if not quite, persuaded that hospital standardization is the only proper way, if human life is worth while.

Over one hundred fifty attended the banquet the first evening. This was followed by an illustrated lecture on "Surgery of the Large Bowel" by Dr. Carl B. Davis, Chicago. He advanced several new propositions looking toward safer procedure in the surgery of this region. Dr. Willis C. Campbell, Memphis, Tenn., spoke of "Arthroplasties of the Knee," illustrated by a motion picture film. Dr. Campbell also took quite an active part in the Dry Clinic program the last morning of the Congress. He is a man to whom it is a real pleasure to listen, for he has the enthusiasm of a crusader of old and the every-day manner of the average man of affairs.

The dry clinics throughout were very interesting and held the attention of the audience the entire day.

The climax of interest of the sessions was reached with the presentation by Dr. W. C. MacCarty, of the Mayo Clinic, of his clinical lecture (illustrated by lantern slides) on "Ulcer and Cancer of the Stomach." His contention is that cancer may and does develop on ulcers; that the pathological department of the Mayo clinic has repeatedly demonstrated carcinoma at the mucous border of recently excised ulcer and that the reason cancer is not demonstrated in the dead-house is that dead tissue does not show cancer as living tissue does.

The Lincoln Fellows of the College of Surgeons deserve the compliments of the profession for the manner and substance of the meeting. Dr. J. S. Welch was the presiding officer.

WILLIAM HARVEY: DISCOVERER OF CIRCULATION OF THE BLOOD

William Harvey was born at Folkstone, England, April 1, 1578. He attended grammar school at Canterbury and at 19 was graduated from Cambridge with the B. A. degree. He studied medicine at Padua, Italy, five years and returned to England to practice at the age of 26. He was appointed physician to St. Bartholemew's Hospital in London in 1609 and became professor of anatomy and surgery in the College of Physicians in 1615. The next year, (1616) he began to explain to the students his views concerning the functions of the heart and the general circulation. It was not until 1628 that he published a full account of his great discovery in his work entitled, "Exercitatio Anatomica de Mortu Cordis et Sanguinis in Animalibus" at Frankfort-on-the-Main, after the publishers of London had declined to publish it.

He was physician extraordinary to King James 1, and later physician in ordinary to his successor, King Charles I.

He travelled extensively in Europe and visited Italy in 1632. Years of honor and fame came to him as his theory of the circulation became generally accepted by the scientists of Europe.

In his later years he built a valuable addition to the Hall of the College of Physicians and gave his paternal estate as an endowment.

He died in 1657 at the age of 80 and was buried at Hempstead, England.

COMMERCIALIZED POSTGRADUATE CLINICAL TOURS OF EUROPE

There has arisen a tendency of late to commercialize overseas clinical tours under a thinly veiled cloak and to use the medical journals to get free advertising. A number of State medical journals have given pages of free publicity such as they would not think of giving to Cook's, Raymond-Whitcomb's or any other tourist agency, gratis.

An opportunity came to the writer to get first hand information on the actual cost of independent European travel in perfect comfort and also to get the reaction of several dozen American medical men who had accompanied a clinical tour to western Europe. Based on the time spent in Europe the charge of the clinical tour was seven dollars a day, or one hundred and eighty-nine dollars per person, in excess of actual cost for the service rendered. When to this is added the usual commission given by steamship companies for the sale of tickets, it can readily be seen that somewhere there was created quite a handsome surplus against the evil day—and the medical journals who by free publicity helped to promote the enterprise got thanks in advance—in advance mind you!

To take from 400 to 700 people on a clinical tour and promise them hotel accomodations and clinical facilities of a high order, is on its face ridiculous. To charge them fancy prices for these items and not be able to redeem the expressed or implied promise, is not far from fakery, under whatever cloak it is done.

If one may judge such a tour by the reactions of most of those of the clinical party whom we met, it fell somewhat short, (except to the favored few) of being an unqualified success clinically; the hotel accomodations were not always above criticism; the numbers were too great to make a readily mobile body; disagreeable incidents occurred to prevent the fullest enjoyment—but, as one man said, "We got in touch with royalty, not otherwise attainable."

THE FRONTIER OF PROGRESS

Down to the present, history has been made for the most part, by young men. Practically every great man of whom we know, began being great early in life; they did their big things during youth. Alexander the Great had the world conquered at the age of 33; Julius Caesar was pontifex maximus at 26, and at 42 had conquered Gaul, and was occupying the same position in the estimation of Rome as Pershing had with us just after the world war; Cicero was a famous orator at 40; Napoleon was at the height of his power at 40. In the scientific field, Galen had a world-wide reputation at 33, Leeuwenhoeck at 41; Isaac Newton made important contributions to science at 23; and so forth.

But these examples are all in the past. Today, neither in business, science, politics, or war, do men achieve greatness during their youth; in fact, men are well into middle age before they achieve recognition in their own small spheres. That is because civilization as it advances, accumulates a mass of accomplishments which must first be acquired and then surpassed, by those who wish to carry progress further. Civilization is like a tower that men are building into the sky; each generation builds up a few layers, and the next generation must climb that much higher with its burden of new material. Progress requires more learning as time goes on; the youthful aspirant must master all that has gone before him; and he must show a superior order of ability in order to extend his accomplishments out beyond those of his predecessors.

Thus, for progress in any line of human endeavor, many years of study and training are required. Youth is spent in catching up with the accomplishments of our ancestors. This is especially true in the field of science; and, therefore, especially important, because the world's progress in all fields depends on the conmitant progress of science. The conduct of war depends on innumerable scientific discoveries; education without the technical equipment of printing, photography, and pictorial processes, would move but haltingly; government would be helpless without telegraphs, telephones, and railways; business is equally dependent on numerous accomplishments of the scientist.

As civilization advances, it takes individuals longer and longer to reach the frontier of progress. Only at more and more advanced ages are men able to begin moving ahead.

It is thought by many that when middle age has arrived, progressive thinking and original work are no longer possible. Organic causes are assigned to this; the hardening of the arteries and the sclerosis of numerous tissues in the body; the loss of resilience, reserve, and adaptability by tissue and function all over the body. To the contrary notwithstanding, we do have examples among us today that vigorous original progress is possible to old men. At ages when men are supposed to be on the shelf, Thomas Edison and Henry Ford are doing aggressive and progressive work.

As medical men, we must admit the existence of sclerotic process as senility approaches, and we must admit their unfavorable effect on mental work. But, we know also that these sclerotic processes have definite causes, many of which are known to us. We know numerous factors which will hasten the aging of man's body, especially the toxic and infectious ones. We are just beginning to learn, also, that this same sclerosis of old age can be considerably postponed by the avoidance of aggravating factors. If people could be induced to live by the principles already known to the medical profession, there would be far greater percentage of them reaching the ages of 80, 90 and 100 years, than there is at present. And the hope burns bright, that the preventive work of the future will be far more effective and extensive than that of the present. Though it is possible that the progress of civilization may be ultimately self-limited by the age which it is possible for an individual man to reach, this limit is in reality very far ahead.

Just as the fine car that is to run a hundred thousand miles must have the care of a competent mechanic, so this machine that we call our body requires the attention of a good engineer to keep it in order, if it is to run long enough to give the mind that it carries a chance to build on to the structure of civilization. Furthermore, in the past, mere blind chance decided whether or not great genius would even stay alive long enough to do any work; at every turn in the road of life, infection, malignancy, hazard, and incompetent care of anatomy and physiology, were lurking to snuff out the life, regardless of its importance to civilization. How many Lincolns or Tennysons have been wiped out by typhoid fever or smallpox in their early youth, the world will never know.

Whether the next two or three generations will have enough men in them living long enough to be able to continue the forward progress of organized knowledge and effort, depends a good deal on whether the men capable of so doing, receive throughout their lives, the thorough and competent attention to small details in their medical care, that is necessary.

Whether civilization is to continue progressing, or whether it will stagnate a while and then recede or tumble into ruin, depends quite directly upon the thoroughness and efficiency of our own humble medical profession.

—Miles J. Breuer.

CONTRACT PRACTICE

The Omaha-Douglas County Medical society has given some attention to the problem of contract practice and recently referred the problem to the American Medical Association and it will likely come up for discussion in the House of Delegates of the State association in May.

The communication follows:

"Inasmuch as contract practice is absorbing an ever increasing portion of general medical practice due to rapid development and concentration in business and industry, and inasmuch as brokers under the guise of health, accident and sickness insurance in which they purport as middle-men to sell medical services to the laity are entering the medical practice, be it resolved:

1. That the whole matter of contract practice be investigated under the direction of the Judicial Council.

2. That the trend and dangers to patient and profession inherent in this movement be analyzed and clearly set forth.

3. That recommendations as to the policy of the American Medical Association towards contract practice, its function, limitations and control be submitted to the House of Delegates for action at its annual session in 1927."

CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS*

Let the attention of the members of our State Medical Association again be attracted to the Annual Congress on Medical Education, Medical Licensure and Hospitals. At least the deans of both your medical schools, the president of one and your State Association delegate are in attendance. The usual two or three hundred men and women are here. It is a very different group and program than at most medical meetings. Most attendants are teachers, state board members and hospital directors. No clinical data or diagnostic evidence is presented. The "patients" here studied are policy patients.

The *status quo* and future of medical education, hospital activities and licensure are studied by set papers and discussion. And sometimes this "patient" (medical education and hospitals) seems pretty sick, too, when some pessimistic old professor discusses a paper proposing to reduce the medical students' 4500 hour cirriculum by cutting off a few hours of said professor's embryology and anatomy. And about the time an ordinary practitioner would expect to see the "patient" embraced or embalmed by the undertaker there comes to the rescue, some sage such as Arthur D. Bevan, chairman of the council. Or perhaps it is General Ireland of the U. S. Army, or Ray Lyman Wilbur of Stanford University or some other dean of medical education in North America. And so for four days the discussion goes on. Sometimes there is a gross difference of opinion and sometimes all of one accord. Sometimes the past is reviewed in detail in order to develop a policy of procedure and again only the present needs seem to dictate the future. No doubt mistakes are often made, but out of it all comes a certain continuous progress.

From all corners of North America come representative expressions of views and needs. These are discussed, studied and coordinated to the end that cooperative progress results. It is a part of the working machinery of your greatest of all medical organizations—the American Medical Association.

—J. S. Welch.

MORE ABOUT A PHYSICIANS' HOME

In the January, 1926, number of this magazine, editorial reference was made to the Physicians' Home movement fostered by Dr. Robert T. Morris, New York. Further developments indicate that in addition to the first Physicians' Home unit established at Caneadea, New York, four years ago, there is now about to be purchased a million dollar estate, "Downsbury Manor," at Ridgefield, Conn., at a cost of $125,000. This manor consists of 300 acres of land and will house several hundred physicians.

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*A letter written to the editor from Chicago at the time of the meeting, February 15-18, 1926.

The plan contemplates a national organization for the movement as a whole in order to raise the sum of $3,000,000, the work to be arranged in four conferences or units, nationally.

FIFTY YEARS OF MEDICINE: DR. J. A. WAGGENER, HUMBOLDT

Dr. J. A. Waggener, Humboldt, rounded out fifty years of practice February 26, 1926, and celebrated the event by giving a dinner to a few of his closest friends; was entertained at a dinner by the Chamber of Commerce and was feted by the Knights of Pythias. Such anniversaries are sufficiently rare to deserve notice.

DR. J. A. WAGGENER

Dr. J. A. Waggener was born in Kentucky in 1852, was graduated from the Louisville Medical College, 1876, practiced about 2 years at Summer Shade, Ky., where he was married; moved to Richardson county, Nebraska, in November, 1878, first settling at Dawson. Several temporary changes of location were made during the pioneer years, finally ending by permanently locating at Humboldt. Some years ago, he had charge of the Grand Island Soldiers' Home Hospital for a period, but the work did not appeal to him so he resigned.

Dr. and Mrs. Waggener have three sons in the medical profession: Dr. W. R. Waggener, Denver; Dr. H. A. Waggener, Los Angeles; Dr. John Todd Waggener, Adams, Nebr., and one daughter, Miss Lillith Waggener, Nebraska University graduate, teacher in the Beatrice high school.

THE A. M. A., AT DALLAS, APRIL 19-23

The annual meeting of the American Medical Association will be held at Dallas, Texas, April 19-23. This is the first time in the history of the organization that a meeting will be held in the Southwest. Dallas is said to be a young New York and the Dallas people want to show us their right to the appellation.

Tickets will be sold on the certificate plan. The purchaser on buying his tickets for Dallas will take a certificate from his local agent. This certificate when validated by the stamp of the Secretary of the A. M. A. at Dallas will entitle the purchaser to buy return tickets at half fare.

The House of Delegates will convene at 10 A. M. April 19; the General Meeting which is the opening exercises of the Scientific Assembly of the Association will be held Tuesday evening, April 20, at 8:30. The meetings of the sections will be held Wednesday, Thursday and Friday.

EDITORIAL PARAGRAPHS

If dandelion were forbidden fruit, how scarce it would be!

Illinium is a new element, discovered by Dr. B. S. Hopkins, chemist at the University of Illinois.

We say, "The world owes us a living". The world owes us nothing, unless by industry, we earn it.

In our daily talk and in our friendly correspondence, how much time and space we waste in commenting on the weather!

Annual meeting, Nebraska State Medical Association, Fontanelle Hotel, Omaha, May 11, 12, 13. You'll be there, won't you?

Nebraska physicians on the program for the Dallas Meeting of the A. M. A., are Drs. Sanford Gifford, M. J. Wohl, Omaha; Frank B. Young, Gering; and A. L. Cooper, Scottsbluff.

Hereafter, under the Harrison Narcotic law, physicians are required to pay but one dollar for license, instead of three dollars as for some years past.

The Saturday Evening Post under the title "Good News Suppressed" publishes a rather scathing article, about the medical profession, which is hardly half true.

"Standardizing on Sizes and Makes of Hypodermic Syringes and Needles", a pamphlet prepared by Becton, Dickinson & Co., Rutherford, N. J., is offered to the profession for the asking.

Your editor and wife are going to the Dallas meeting and would like to go by auto. They would like to hear immediately from any doctor, who, with his wife, would like to accompany them. Start April 15 or 16.

During the clinical meeting at Lincoln in February, a case of myositis ossificans was presented by Dr. J. E. M. Thomson and a case of regeneration of the bony part of the clavicle was presented by Dr. E. M. Finney.

An admiring doctor-friend refers to the editor as "the Sage from Main Street", which sounds euphonious to say the least. A few more such compliments might induce him to write a book, entitled, "A Prairie Doctor in the Eighties".

The profession will be glad to know that President H. J. Lehnhoff is making an altogether satisfactory recovery from a prolonged illness. He is now getting the out-door life and will be able to be with us at the annual meeting in Omaha, in May.

The Ninth Congress of the "Association Des Medicins De Langue Francaise De l'Amerique Du Nord" is to be held at Montreal, September 21-22-23, 1926. Further information may be obtained by addressing Dr. Romeo Boucher, Casier Postal 183, Station Outremont, Montreal.

The Commonwealth Fund, a philanthropic foundation established by Mrs. Stephen V. Harkness, with a total endowment of $38,000,000, announces an initial appropriation of $350,000 to be expended for the construction of two hospitals in rural communities. The first one is to be at Farmville, Va. The local community must contribute one-third of the amount for the hospital and must meet operating and maintenance costs.

Two bequests worth mentioning have recently come to the Nebraska Methodist Hospital: The late Miss Belle Dewey, Omaha, gave $1,000 toward the new nurses' home and approximately $50,000 toward establishing a place in connection with the hospital for free treatment of indigent women suffering from cancer, the ward or building to be given the name "Dewey". The late Martin and Mary Ellen Duey of Chester, Nebr., bequeathed $9,500 to the Permanent Endowment Fund of the Methodist Hospital.

Wonder if the profession knows what a wonderful institution the Nebraska Orthopedic Hospital is? It was the first State orthopedic hospital; it owes its origin mostly to Dr. J. P. Lord of Omaha with some assistance from Dr. H. W. Orr, Lincoln; the first appropriation for the hospital was $10,000 for the biennium, of which amount $6,000 was put in equipment, leaving $4,000 for maintenance for two years. The present hospital has accomodation, nominally, for 100 patients, but accomodates an average of 125, with an annual turnover of 475 patients. About 65% of the patients leave the hospital cured, an additional 20% are benefited.

PROGRESS OF THE WOMEN'S AUXILIARY

The Women's Auxiliary to the State Medical Association now has 178 members. We have two County Auxiliaries: Pawnee County and Adams County. Merrick County is organizing.

We find in checking up the membership, that in some counties, the women asked to present membership, have failed to do so. They have not even notified the officers of this. Will the doctor's wives in these counties, please send their dues ($1.00) direct to me.

I would also like to have the name of every doctor's wife who will attend the Dallas Meeting.

Mrs. Clarence Rubendall, Sec.-Treas.,
116 South 50th Street, Omaha, Nebr.

NEBRASKA ASSOCIATION OF MEDICAL WOMEN'S MEETING

The Nebraska Association of Medical Women will meet for dinner Tuesday evening, May 11th (the evening of the first day of the meeting of the Nebraska State Medical Association). The program following the dinner will consist of a Symposium of Diabetes Mellitus.

All women practicing in Nebraska are urged to attend the Nebraska State Medical Association and to be present at this meeting of the Nebraska medical women.

Nora C. Fairchild, Pres.

AMERICAN BOARD OF OTOLARYNGOLOGY

The American Board of Otolaryngology has arranged for two examinations during the month of April as follows:

St. Paul's Sanitarium, Dallas Texas, Monday, April 19th, at 9 a. m.

Stanford University Medical School, Clay and Webster Streets, San Francisco, California, Tuesday, April 27th, at 9 a. m.

Applications may be secured from the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

THE SAD FATE OF OUR WANDERING BOY, LUCIEN

When you get to feeling rotten and you know you're on the bum, And your eyes start out to water and your head feels like a drum, And your temperature is higher than you've ever been used to, And your muscles feel so sore you think the bones are coming through,

And your nose is awful "runny" and you blow it all the time, And the way you sneeze and chill and cough is certainly a crime, And your neighbors all surround you and all tell you what to do, You can make a diagnosis that you've simply got the "Flu".

The "Flu" is just a name that needs a few corrections: It just provides a name to use for many mixed infections, As you're just an incubator that has surely proved a boon, To the organisms hiding till you weren't quite so immune.

You might have had a Pfeiffer or a Fraenkel in your throat; Meningococci might have been in wait to get your goat, But when your anti-bodies were not working hard enough, The hemolytic strepto started out to "do his stuff".

He lay securely hidden in your tonsils or your nose, Or some other point where none could see just how he grows and grows, He watched till your immunity was pretty nearly broke, And then he told the other bugs to sit and watch his smoke.

On the morning that he went to work, you got up feeling good, But along about eleven thought your head was made of wood, When you found your scalp so tender that it would not stand a comb, You called up for a taxi and then headed straight for home.

You coughed a bit, at times was hot, at other times you froze, And every time you had a chance you had to blow your nose, Your joints were stiff, your muscles hurt, you chilled when by the door, And then to top the whole thing off, your blooming throat got sore.

When you got home, you hit the tub and had the water hot, While you were in, you only wished that you could get a shot, Of some old style pre-Volstead stuff, this new is rather risky, This "coffin varnish" that is made and peddled out as whiskey.

Your bones still ached and still you chilled when you got into bed, You wondered if the pain would still remain when you were dead, You took a dose of calomel some salts and cincophen, And hoped the undertaker would be nice when he stepped in.

Your nose got sore, your lips were cracked but finally you got well, And felt as though you'd just been snatched out of the jaws of hell, And then you cursed the bug that always lies in wait to sock us, That hemolytic type that's of the family, Streptococcus.

—Lucien Stark.

NECROLOGY

WILLIAM G. BIXLER, Panama, Nebr.; Lincoln Medical College, 1903; died February 14, after a long illness, aged about 61 years.

JOHN H. FOCHTMAN, Cozad, Nebr.; College of Physicians and Surgeons, Baltimore, 1883; a well known practicing physician at Cozad, since graduation, 42 years ago; a long time member of the Nebraska State Medical association; died at a Kearney hospital, March 13, 1926, of an organic heart affection, aged about 64 years. Dr. H. L. Fochtman, Cozad, is a son of the deceased.

GEORGINA GROTHAN, Winnetka, Ill.; Northwestern University Woman's Medical School, Chicago, 1893; formerly a practitioner at St. Paul, Nebr., and Kearney, Nebr.; a former member of the Nebraska State Medical Society; died February 12, 1926.

HUMAN INTEREST TALES

Dr. F. A. Nelson has moved from Dawson to Humboldt.

Dr. J. E. Olsson, Lexington, has returned from a month's study in Chicago.

Dr. and Mrs. J. W. Miller, Gibbon, visited relatives in California during March.

Dr. Minor Morris, Alliance, has been reported alarmingly ill for some some.

Dr. Harry J. Newall, Alexandria, took some special work at Kansas City, recently.

Dr. J. H. Lowery, Leigh, has spent part of the winter in and about San Diego.

Dr. Clement Martin, Omaha, has become a member of the permanent staff of the Mayo clinic.

Dr. and Mrs. Irving C. Wood, Omaha, have returned after three months spent in California.

Dr. Charles L. Roland, for the past year in practice at Emerson, has located at Humboldt, S. D.

Several physicians recently coming to the state, have been arrested for practicing without a license.

Dr. E. A. Drake, Kearney, who has been abroad for study in eye, ear, nose and throat diseases, has returned.

Dr. A. W. Anderson, recently of Cumberland, Iowa, has become associated with Dr. J. W. Bozarth, at Lexington.

The marriage of Dr. George C. McKhann, Lincoln, and Mrs. Jessie Stone, Glenwood, Iowa, March 5, is announced.

Dr. H. C. Smith, for several years in practice at Ainsworth, is head of a new 75-bed hospital built at Glendale, Calif.

Dr. J. P. Weyrens, for several years a member of the Slagle clinic, Alliance, will locate in Scottsbluff, to practice surgery.

Dr. C. D. Williams, Genoa, has purchased a commodious residence property and will transform it into a private hospital.

Dr. and Mrs. Harold Gifford who have been in the Orient for several months, will return home during the month of April.

Dr. George Hoffmeister, Imperial, attended the meeting of the American College of Physicians at Detroit, in February.

Dr. L. T. Sidwell, superintendent of the Institution for the Feeble Minded, spoke before the local Kiwanis club recently on Arrested Development.

Dr. F. H. Kinyoun, Omaha police surgeon for the past eight years, has gone to Vienna and Budapest for about five months' study in surgery.

A Dr. A. C. Searles, not known in the organized profession, was shot to death in his office in Omaha in February. The murderer was apprehended, tried and sentenced to the electric chair, July 9, 1926.

Dr. Herman Kretschmer, Chicago, spoke on "Urological Problems of the General Practitioner", before the Lancaster County Medical society, March 20th.

Dr. Edward C. Davidson of the Henry Ford hospital, Detroit, spoke before the Omaha-Douglas County Medical society, recently, on the management of burns.

Dr. C. S. Boggs, Filley, was a member of the first class graduated from the Nebraska University College of Medicine when the medical department was at Lincoln, in 1884.

Dr. M. S. Henderson, chief of the department of orthopedic surgery at the Mayo clinic was the guest of Dr. H. W. Orr, Lincoln, in February, and gave a talk on surgical clinics in America and Europe to a small company of invited surgeons.

Dr. K. S. J. Hohlen, Lincoln, and Dr. F. W. Buckley, Beatrice, had the misfortune to have their autos collide with disastrous result to both machines, recently. Collisions between doctors are not unknown, but collisions between doctors' autos has been unheard-of heretofore.

STATE BUREAU OF HEALTH

DIVISION OF EPIDEMIOLOGY

Lincoln, Nebraska

Contagious Diseases Reported for Year 1925

ADAMS	
Chickenpox	1
Trachoma	1
Tuberculosis	7
Whooping cough	2
ANTELOPE	
Diphtheria	10
Influenza	1
Scarlet fever	18
Septic sore throat	1
Smallpox	4
Tuberculosis	1
ARTHUR	
Scarlet fever	5
BANNER	
Tuberculosis	1
BLAINE	
Measles	2
Mumps	2
Scarlet fever	3
Tuberculosis	1
BOONE	
Scarlet fever	3
Smallpox	3
Typhoid fever	1
BOX BUTTE	
Diphtheria	5
Scarlet fever	13
Smallpox	1
Typhoid fever	2
BOYD	
Diphtheria	1
German measles	1
Smallpox	5
Whooping cough	12
BROWN	
No cases reported	
BUFFALO	
Chickenpox	8
Diphtheria	1
Poliomyelitis	5
Scarlet fever	3
Tuberculosis	8
Whooping cough	4
BURT	
Chickenpox	6
Diphtheria	1
Measles	1
Poliomyelitis	1
Scarlet fever	16
Smallpox	14
Typhoid fever	2
Whooping cough	1
BUTLER	
Diphtheria	4
Tuberculosis	2
CASS	
Chickenpox	2
Diphtheria	1
Poliomyelitis	2
Scarlet fever	40
Sleeping sickness	1
Smallpox	3
Tuberculosis	1
Typhoid fever	3
CEDAR	
Diphtheria	1
Meningitis, C. S.	2
Mumps	5
Poliomyelitis	3
Scarlet fever	8
Smallpox	25
Tuberculosis	3
Typhoid fever	1
Whooping cough	14
CHASE	
No cases reported	
CHERRY	
No cases reported	
CHEYENNE	
Paratyphoid fever	2
Poliomyelitis	1
Scarlet fever	2
Typhoid fever	2
CLAY	
Scarlet fever	5
Tuberculosis	1
Whooping cough	1
COLFAX	
Chickenpox	8
Diphtheria	3
Measles	1
Scarlet fever	7
Smallpox	4
Typhoid fever	3
CUMING	
Poliomyelitis	2
Typhoid fever	3
CUSTER	
Chickenpox	1
Scarlet fever	1
Smallpox	2
Tuberculosis	3
DAKOTA	
Meningitis, C. S.	1
Scarlet fever	9
Smallpox	84
Tuberculosis	2
DAWES	
Chickenpox	1
Diphtheria	2
Poliomyelitis	1
Scarlet fever	5
Tuberculosis	1
Typhoid fever	2
DAWSON	
Chickenpox	1
Scarlet fever	2
Typhoid fever	2
DEUEL	
No cases reported	
DIXON	
Chickenpox	2
Pneumonia	1
Smallpox	7
Tuberculosis	1
Typhoid fever	2
DODGE	
Chickenpox	4
Diphtheria	2
Measles	11
Poliomyelitis	4
Scarlet fever	25
Smallpox	4
Tuberculosis	1
DOUGLAS	
Chickenpox	372
Diphtheria	166
Measles	23
Meningitis, C. S.	2
Mumps	10
Poliomyelitis	66
Scarlet fever	164
Sleeping sickness	2
Smallpox	538
Tetanus	7
Tuberculosis	33
Typhoid fever	8
Whooping cough	92
DUNDY	
Measles	1
Scarlet fever	1
Tuberculosis	1
FILLMORE	
Diphtheria	1
Mumps	11
Scarlet fever	2
Smallpox	1
Tuberculosis	1
FRANKLIN	
Chickenpox	2
Influenza	24
Scarlet fever	2
Whooping cough	3
FRONTIER	
Scarlet fever	4
Smallpox	7
Tuberculosis	1
Typhoid fever	1
FURNAS	
Scarlet fever	1
Tuberculosis	1
Typhoid fever	1
GAGE	
Chickenpox	1
Diphtheria	8
Influenza	21
Measles	2
Meningitis	1
Scarlet fever	11
Septic sore throat	3
Smallpox	1
Tuberculosis	4
Typhoid fever	3
GARDEN	
Poliomyelitis	4
GARFIELD	
No cases reported	
GOSPER	
No cases reported	
GRANT	
Measles	1
Mumps	4
Scarlet fever	1
GREELEY	
Poliomyelitis	1
Scarlet fever	6
HALL	
Chickenpox	39
Diphtheria	7
Measles	4
Mumps	132
Poliomyelitis	1
Scarlet fever	26
Smallpox	2
Tuberculosis	3
Typhoid fever	4
Whooping cough	21
HAMILTON	
Poliomyelitis	2
Scarlet fever	4
Septic sore throat	1
HARLAN	
Scarlet fever	3
Tuberculosis	2
HAYES	
No cases reported	
HITCHCOCK	
Diphtheria	12
Scarlet fever	2
Smallpox	1
Typhoid fever	1
HOLT	
Chickenpox	4
Diphtheria	4
Measles	4
Poliomyelitis	1
Scarlet fever	19
Smallpox	3
Tuberculosis	2
HOOKER	
Tuberculosis	1
HOWARD	
Chickenpox	7
Diphtheria	1
Mumps	1
Scarlet fever	5
Typhoid fever	1
Whooping cough	6
JEFFERSON	
Chickenpox	2
Diphtheria	2
Poliomyelitis	1
Scarlet fever	34
Smallpox	3
Whooping cough	2
JOHNSON	
Chickenpox	12
Diphtheria	26
Smallpox	1
Typhoid fever	1
Whooping cough	5
KEARNEY	
Diphtheria	2
Meningitis	1
Poliomyelitis	1
Scarlet fever	3
Smallpox	1
Typhoid fever	2
KEITH	
Chickenpox	1
Diphtheria	1
Measles	1
Smallpox	10
Tuberculosis	1
KEYAPAHA	
No cases reported	
KIMBALL	
No cases reported	

STATE BUREAU OF HEALTH—(Continued)

DIVISION OF EPIDEMIOLOGY

Lincoln, Nebraska

Contagious Diseases Reported for Year 1925

County	Disease	Cases
KNOX	Scarlet fever	1
	Tuberculosis	3
LANCASTER	Chickenpox	181
	Diphtheria	56
	German measles	3
	Measles	34
	Meningitis, C. S.	1
	Mumps	89
	Pneumonia	31
	Poliomyelitis	6
	Scarlet fever	69
	Sleeping sickness	1
	Smallpox	18
	Tetanus	2
	Tuberculosis	71
	Typhoid fever	9
	Whooping cough	273
LINCOLN	Chickenpox	39
	Diphtheria	20
	German measles	1
	Influenza	1
	Measles	4
	Meningitis, C. S.	2
	Mumps	9
	Pneumonia	5
	Poliomyelitis	2
	Scarlet fever	42
	Smallpox	7
	Tuberculosis	4
	Typhoid fever	1
	Whooping cough	14
LOGAN	No cases reported	
LOUP	No cases reported	
McPHERSON	No cases reported	
MADISON	Chickenpox	66
	Diphtheria	8
	Measles	3
	Mumps	5
	Oph. Neonatorum	1
	Pneumonia	3
	Scarlet fever	7
	Tuberculosis	1
	Typhoid fever	17
	Whooping cough	2
MERRICK	Chickenpox	1
	Diphtheria	26
	Mumps	1
	Poliomyelitis	1
	Scarlet fever	14
	Typhoid fever	2
MORRILL	Scarlet fever	5
	Tuberculosis	1
NANCE	Chickenpox	3
	Diphtheria	5
	Scarlet fever	50
	Tuberculosis	1
NEMAHA	Chickenpox	4
	Meningitis, C. S.	1
	Mumps	1
	Scarlet fever	6
	Whooping cough	11
NUCKOLLS	Chickenpox	1
	Diphtheria	1
	Scarlet fever	1
	Tuberculosis	1
OTOE	Tuberculosis	1
	Typhoid fever	1
PAWNEE	Scarlet fever	3
	Smallpox	3
	Tuberculosis	2
PERKINS	No cases reported	
PHELPS	Chickenpox	2
	Mumps	1
	Poliomyelitis	1
	Tuberculosis	1
	Typhoid fever	2
PIERCE	Scarlet fever	6
	Smallpox	4
PLATTE	Chickenpox	11
	Diphtheria	5
	Measles	4
	Mumps	23
	Scarlet fever	36
	Smallpox	34
	Tuberculosis	3
	Whooping cough	9
POLK	Poliomyelitis	2
	Scarlet fever	13
RED WILLOW	Influenza	1
	Scarlet fever	1
RICHARDSON	Scarlet fever	4
	Tuberculosis	3
ROCK	Scarlet fever	29
SALINE	Chickenpox	5
	Diphtheria	6
	Pneumonia	1
	Poliomyelitis	4
	Scarlet fever	14
	Smallpox	1
	Whooping cough	5
SARPY	Chickenpox	5
	Diphtheria	2
	Poliomyelitis	2
	Scarlet fever	3
	Smallpox	18
SAUNDERS	Chickenpox	1
	Influenza	145
	Poliomyelitis	1
	Scarlet fever	32
	Sleeping sickness	1
	Smallpox	1
	Typhoid fever	2
	Whooping cough	11
SCOTTS BLUFF	Chickenpox	5
	Diphtheria	7
	Measles	1
	Meningitis, C. S.	1
	Mumps	15
	Poliomyelitis	6
	Scarlet fever	31
	Tuberculosis	1
	Typhoid fever	10
	Whooping cough	1
SEWARD	Chickenpox	5
	Mumps	3
	Tuberculosis	3
SHERIDAN	Diphtheria	1
	Scarlet fever	1
SHERMAN	Tuberculosis	1
SIOUX	Mumps	5
	Tuberculosis	1
STANTON	Diphtheria	5
	Scarlet fever	1
THAYER	Diphtheria	10
	Scarlet fever	1
	Typhoid fever	1
	Whooping cough	3
THOMAS	No cases reported	
THURSTON	Diphtheria	7
	Scarlet fever	1
	Tuberculosis	10
	Typhoid fever	1
VALLEY	Poliomyelitis	1
	Scarlet fever	5
	Typhoid fever	2
WASHINGTON	Diphtheria	1
	Scarlet fever	10
	Smallpox	2
	Tuberculosis	1
WAYNE	Chickenpox	1
	Scarlet fever	7
	Smallpox	11
	Tuberculosis	1
WEBSTER	Chickenpox	1
	Poliomyelitis	3
	Tuberculosis	2
WHEELER	No cases reported	
YORK	Diphtheria	4
	Mumps	4
	Scarlet fever	3
	Tuberculosis	4
	Typhoid fever	1
	Whooping cough	4

TOTALS

Disease	Cases
Chickenpox	805
Diphtheria	425
German measles	5
Influenza	193
Measles	97
Meningitis, C. S.	12
Mumps	321
Oph. Neonatorum	1
Paratyphoid fever	2
Pneumonia	41
Poliomyelitis	125
Scarlet fever	851
Septic sore throat	5
Sleeping sickness	5
Smallpox	831
Tetanus	9
Trachoma	1
Tuberculosis	201
Typhoid fever	94
Whooping cough	496

"Take Care of your Skin," says a new advertisement. There is a similar plea more tersely expressed on all the 'buses: "Safety First."

"A man is reported to have made a cool quarter million in London recently. What an ideal occupation during the heat wave!"

"If to the victors belonged the spoils there wouldn't be much trouble getting volunteers for that war against the rum-runners."

"Washington "News" says France is "facing its financial Verdun." With the accent on the dun.

ANNUAL MEETING, OMAHA, MAY 11, 12, 13, 1926

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REPORT OF A CASE OF MULTIPLE SARCOMA OF THE BRAIN*

THOS. L. HOULTON, M. D., OMAHA,
Assistant in Neurology, Creighton University, College of Medicine.

It is a well known fact that the brain is a favorite site for new formations, as there is hardly any kind of tumor which does not occur in it. The most frequent forms of brain tumor are Gliomata, Tuberculoma, Sarcoma, Carcinoma, Fibroma, Gumma, Adenoma, and the Endothelioma.

It is estimated that 50%(1) of brain tumors can be localized by careful detailed and repeated neurological examinations and an additional 8%(3) to 15%(1) can be located by x-ray examinations alone without injection of air.

In an endeavor further to facilitate localization, Walter Dandy(2) of Baltimore, has developed a procedure in which he injects air into the ventricles of the brain preliminary to roentgenography. This is called cerebral pneumography or ventriculography, and since its introduction various claims have been made as to its localizing and diagnostic value.

Experience of different workers with ventriculography have learned from unexpected fatalities that its use is accompanied with an element of danger. It is generally conceded that this method is a very valuable aid in localization of brain tumor, the position of which gives no definite findings by ordinary neurological examination. It is especially useful in locating those tumors which for the most part are located on the mesial surface of the brain or are situated either directly in the ventricles or are in close enough proximity to distort them. Inversely a negative report is also of value as a further elimination process, since such a report tends to rule out the ventricles and paraventricular tissues from the list of possible etiological offenders.

Ventriculography carries with it a mortality which varies in different neurosurgical clinics:

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*Paper read before the Nebraska State Medical Association, annual meeting, Lincoln, Nebr., May 12-14, 1925.

Penfield (4); in a series of 60 cases had no deaths that were definitely due to the result of air. One case died 36 hours later, for which the injection of air may have been partly responsible. Adson(3) had six deaths in a series of 72 cases, or mortality of 8.3%. Grant(5), in a series of 40 cases, gives a mortality of 12%. Doctor Grant(6), in a critical review of 392 cases of ventriculography performed by various workers in various clinics, records a mortality of 8.1% for the group. In justifying this rather high mortality, he states:

> "In spite of inexperience with this method, positive information as to the position of the tumor was obtained in roughly 80% of cases in this series. In 30% of these localized cases, ventriculography gave us definite facts as to the location of the neoplams when all other evidence was lacking. Of the 93 cases thus localized by ventriculography in the absence of the neurologic evidence, 44 or nearly 50% could be removed by surgery, as against 100%, the mortality rate in unlocalized and unextirpated intracranial neoplasms."

The value of this air method and the caution required in its use are emphasized by Dr. Penfield(4) of the New York Neurological Institute, who in reporting 60 cases of cerebral pneumography, says:

> "Cerebral Pneumography in properly selected cases is of the greatest assistance in localizing tumors and outlining the ventricles before operation, but as a procedure it must in no wise diminish the thoroughness of the neurological examination and should not be employed unless these examinations prove indeterminate".

A method of examination based upon an entirely different principle is presented by Grant(7) of Philadelphia, who reports success in determining the localization of brain tumor and also its type by the difference in electrical conductivity of the tissue. This method, however, is of practical value only in subcortical tumors which when located are usually inoperable.

Although the localization of brain tumors, the surgical technique employed in the attempt to remove them and the pre- and post-surgical treatment, have in recent years been greatly improved, still the end result in cures for cases of brain tumor are far from satisfactory. This unsatisfactory result depends largely upon the malignant nature of the glioma, the most frequent form of brain tumor encountered. As a group the gliomata make up 40%(8) of brain tumors, and under the present method of classification this type of tumor varies within rather broad limits.

Neurological surgeons who are handling large number of the gliomata, have observed that they differ widely in their rate of growth, their morphology and in their histopathological formation. Some recent work on the subdividing of the gliomata has been reported by Drs. Globus and Strauss(9) of New York, and Baily and Cushing(8) of Boston. It is hoped that as the various sub-types of these tumors are further studied certain of them may be found to respond to some sort of curative treatment. In fact, already data is beginning to appear which justifies this hope. Bailey and Cushing(8) report one patient (case 17) of the mid-cerebellar medullo-blastoma who lived comfortably 4 years after removal and radiation and then had a radiation and a second removal and is still living.

Although the glioma and sarcoma arise from two different types of tissue, they are very difficult to distinguish from each other by gross appearance. The glioma arise chiefly from the neuroglia (ectodermal) tissue and destroys by invasion, while the sarcoma when primary is derived from the mesodermal tissue which secondarily invades the neural tube with the ingrowth of the vascular and membraneous tissue, and destroys by compression rather than by infiltration.

The case here recorded, presents two sarcomata of the brain; one small giving no symptoms, and one large, giving very definite and interesting neurological findings.

Case R. Z. Age 47 years. Case of Dr. John H. Thomsen, Frederick Hospital, Omaha, Nebraska.

Informant: Patient and Friend.

History: February 1st, 1925. Family history is negative. Patient was right-handed. He has always been rather heavily alcoholic. Three years ago was injured in a train accident. He received several deep wounds of the scalp, was unconscious five hours, but recovered without complications. His general health up to present illness was good.

Present Illness: Has been feeling poorly and complaining of headaches since July 1924, at which time he also noticed that he had a tendency to fall towards or lean towards the right side while walking or while sitting on his truck. This became more pronounced later. About this time he began to develop a changed attitude towards his friends and did not care to talk or visit with them as was formerly his habit. Since that time his strength has been waning and he has felt weak while at work. In November 1924, he began to lose power in his right arm and shortly afterwards in his right leg. This loss of power gradually increased until January 1st, 1925, when his right arm became totally paralyzed, but he was able to walk until January 19th, 1925, when his right leg became helpless. It was noticed at this time that the right side of his face was more nearly flat than the left and that he had slight difficulty in talking and eating. There was no history of nausea or vomiting.

Examination: General examination, February 1st, 1925, showed the patient to have a spastic hemiplegia of the right side of the face, right arm and leg, a complete right sided hemianeasthesia, a right lateral homonymous hemianopsia, and a slight difficulty in speaking. Detailed neurological examination of positive findings is as follows:

Optic Nerve—Examination of the visual fields by the hand test, gave a very definite right lateral homonymous hemianopsia. Opthalmoscopic examination revealed no atrophy, choking or hyperaemia of the discs.

Oculomotor Nerve—The pupils were small, irregular and unequal, with very sluggish reaction to light or on accommodation. Otherwise negative.

Trigeminal Nerve—Test of the motor portion of the fifth nerve showed a definite weakness on contraction of the right temporal and masseter muscles. Tests of the Sensory Part showed a marked diminution of the sense of light touch and a loss of the sense of pain and temperature over the right side of the face and head. Vibratory sense was present.

Abducent Nerve—There was slight turning-in of the right eye.

Facial Nerve—Upper Face—Forehead showed no paralysis on either sides, could wrinkle both sides of the forehead equally well. The right lower face was flattened. The right angle of the mouth was slightly lower than the left, the right palpebral fissure was wider than the left. The mouth was drawn somewhat to the left.

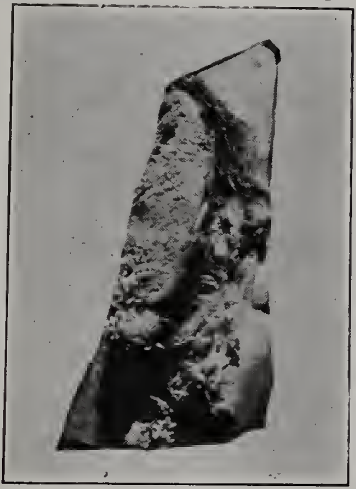
Hypoglossus Nerve—On Protrusion the tongue deviated markedly to the right side, lying in the mouth it was drawn slightly to the left.

Deep Reflexes—Right biceps, triceps and wrist reflexes were markedly exaggerated. Positive Babinski, Gordon and Oppenheim on the right. Unsustained clonus of right ankle. Deep Reflexes of the left side were also active, but there was no Babinski or clonus.

Superficial Sensibility—Light touch was markedly diminished over the entire right half of the body. The sensations of pain, heat and cold were lost over the right side of the body. Astereognosis was present in the right hand. Vibratory sense was preserved, over both sides of the body. Spinal fluid at this time showed slight increase in pressure, 30 lymphocytes per cubic mm. Negative globulin. Negative Wassermann. Negative colloidal gold curve. X-ray of skull was negative.

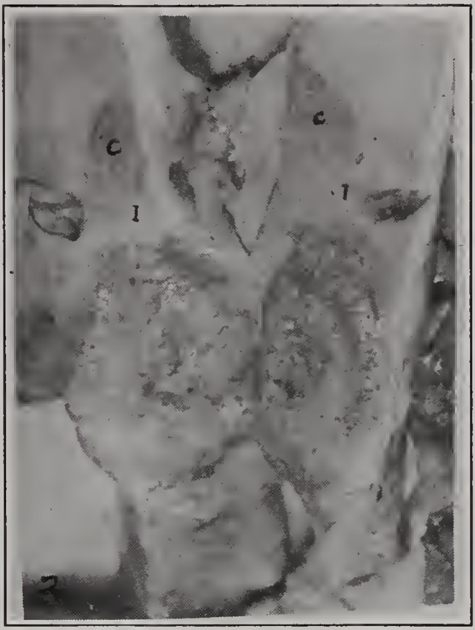
Tentative Diagnosis: A destructive lesion either vasculor of neoplastic in the posterior portion of the genu and complete posterior wing of the left internal capsule.

Progress of Case: On February 2nd, 1925, the patient had a convulsion, Jacksonian in character, beginning in the right arm and soon extending to the right leg and face, lasting four minutes and terminating in a general convulsion. During the convulsion, head and eyes deviated to the right. Was semiconscious for six hours following the convulsion during which time his right arm and leg was flaccid. Lumbar Puncture showed increased pressure. Hypertonic salt solution was given, B. P. 140 over 90.



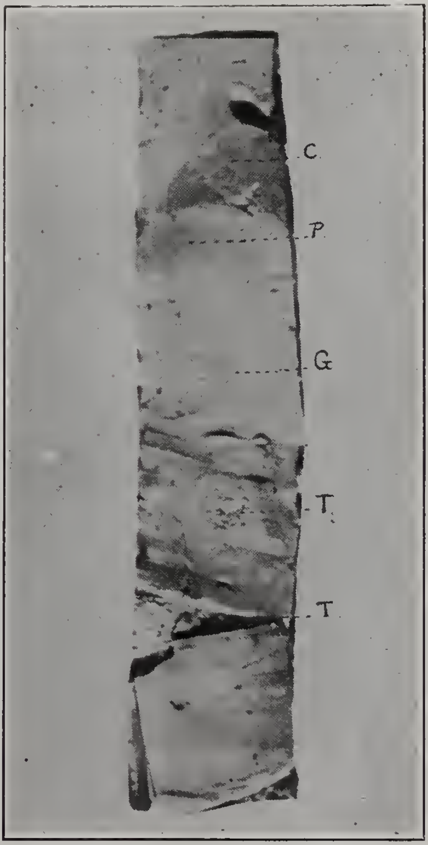
(1) Large tumor encapsulated—pealing away easily from adjacent tissue.

On February 3rd, had a similar convulsion lasting seven minutes, was unconscious eight hours following this. Hypertonic salt solution and Lumbar Puncture restored consciousness. B. P. 150 over 100.



(2) Location of large tumor. (C) Caudate. (I) Internal Capsule.

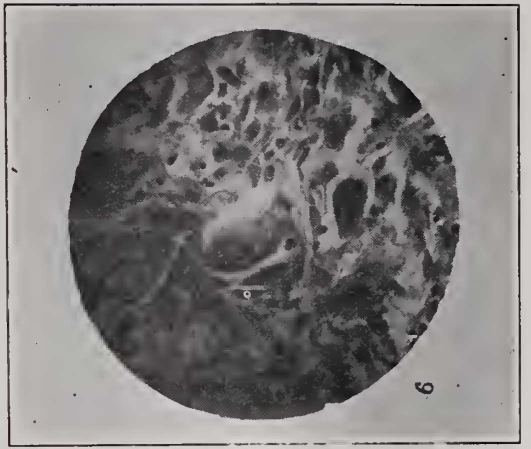
These convulsions were regarded as being cortical in origin and an exploratory craniotomy was advised.



(3). Location of large tumor (lower portion). (C) Caudate Nucleus. (P) Putamen. (G) Globus Pallidus. (T) Tumor.

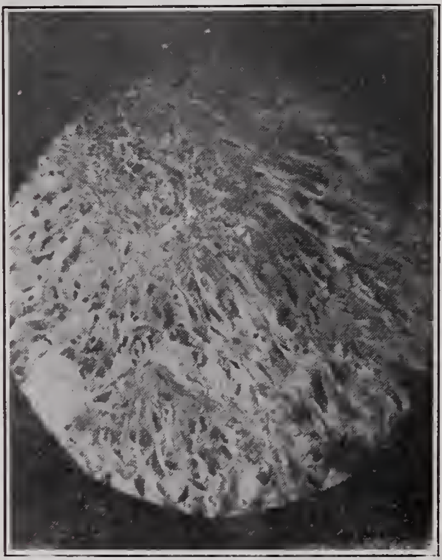
On February 4th, Dr. E. C. Henry at the Lord Lister Hospital, opened the left side of the skull. No tumor was observed, the brain tissue was very edematous, the convolutions were markedly flattened, there were no pulsations in that part of the brain exposed. The left lateral ventricle was tapped, and pulsations of the brain appeared. The patient died the day following the operation.

Autopsy showed a very large and edematous brain. The left cerebral hemisphere being much larger than the right, there was marked flattening of the convolutions over the entire left side. Cross section showed a fair sized somewhat encapsulated tumor mass in the genu and posterior wing of the left internal capsule and a second smaller mass about the size of a pea beneath the cortex of the frontal lobe of the same side, well forward from the motor area.



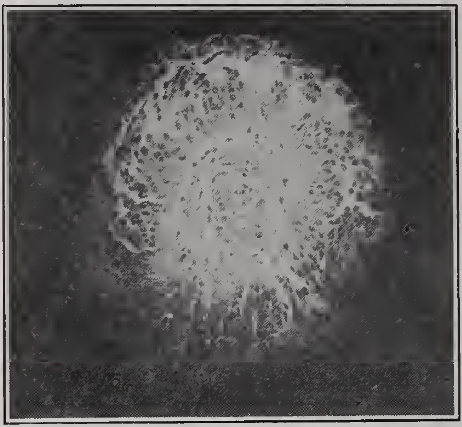
(4) Large polygonial shaped cells occasionally seen in small tumor—a few spindle shaped cells.

The larger tumor in the posterior wing of the internal capsule had penetrated for a short distance in the adjacent tissue of the basal ganglion. The posterior horn of the lateral ventricle was partially obliterated by the growth.



(5) Spindle cells near blood vessel. Large tumor.

Microscopic report by Dr. C. Rassum. Haemotoxyaline and eosin stain. The growth shows masses of large polyhedral and spindle shaped cells and many thin walled and new forming blood vessels. Portions of the tissue are made up of blood vessels encased in thick layers of spindle shaped cells, radially arranged giving the impression of a scaffolding of the blood vessels along which tumor tissue is growing. In some parts of the tumor a large portion of the cells are multinuclear and quite large, the nudei being distributed irregularity through the cell. There are some areas of necrosis. Phosphotungstic Acid stain showed no increase in glia tissue.



(6) Radially arranged spindle cells about a blood vessel—large tumor.

Pathological Diagnosis. Sarcoma probably originating from the sheaths of the blood vessels of the brain.

CONCLUSIONS

I. The localization of brain tumor is not yet an exact science, new and improved methods that will further narrow the per cent of cases unlocalizable, by present methods, are to be persistently sought after.

II. In this case, the hemiplegia, the hemianesthesia and hemianopsia give a very definite anatomical location of the lesion in the posterior genu and posterior limb of the internal capsule.

III. As between a vascular and neoplastic causative lesion, the slow onset and gradual progress were in favor of the latter.

DISCUSSION:

Dr. JAMES F. McDONALD, (Omaha): Doctor Houlton has given us a very interesting paper. The introductory point he raised as to the limitations of our present methods of localizing intracranial growths require repetition and emphasis till our diagnostic procedures shall be developed to the point of meeting the demands put upon them for exact localization in all cases. Dandy's method, still fairly new, which localizes by x-ray after air injection into the ventricles, neoplasmata, unlocalizable by other methods, is a very useful addition to neurologic diagnosis, and brings it so much closer to an exact science. Such improvements in the technique of localization are indeed valuable in a field where non-localization has such tragic implications. Pneumography in skilled hands is the most valuable single method brought into this field in recent years. Doubtless a great experience in the use of this principle in diagnosis shall render its employment progressively more safe.

Unless such fundamental sciences as bio-chemistry and bio-physics shall in the future satisfy our hopes by bringing to us ways and means of destroying in situ all neoplasmata it would appear that our next steps in advance in this field must lie in the direction of a more exact means of early localization of the percentage of brain tumors which are by our present methods poorly localizable.

As to the clarification of the pathological data underlying the conception of gliomata, the contributions of my old friend Globus, and Strauss, as well as those of Cushing and Bailey bring into neurology a distinct advance.

The case which Dr. Houlton has presented here exhibits many points of interest. Several of the general features of the case are usual and typical of brain tumor. The headache, the gradually progressing weakness, the changes in disposition, all suggest intracranial mischief.

The disturbances of posture and gait, the gradual onset of paralysis, hemiplegic in type, and the hemianopsia furnished localizing data of the utmost value since all motor and sensory fibres (excepting certain fibres of special sense) of the opposite side of the body run together in the posterior limb of the internal capsule, which is thus a common highway for impulses entering and leaving the cerebrum. A total right hemiplegia, hemianesthesia and hemianopsia would call for a total lesion of the posterior limb of the left internal capsule. The fact that the paralysis began in the arm, shows that the tumor growth started well forward in the posterior limb. The addition of the lower extremity later indicates that the lesion extended backwards to catch the motor bundle controlling the lower part of the body. The defect in the face and in the muscles of speech and of mastication showed that the lesion also extended forward, damaging the knee capsule, which contains all motor fibres that control the musculature innervated by all the cranial nerves.

There is no other single location where one lesion would give all the symptoms present. A lesion in the medulla oblongata, involving the pyramid and the median fillet just behind the pyramid, would give the hemiplegia, and a hemi-anesthesia for deep sensibility, but superficial sensibility would be unimpaired, since the lateral spino-thalmic tract mediating this type of sensation joins the media fillet higher up. A lesion at this location, however, would miss the visual pathway and the same time by catching the twelfth nerve fibres would give a lower motor paralysis of the tongue on the same side. It would also tend to become bilateral since both motor and both deep sensory pathways are very close together in this region.

Again, a lesion of the pyramidal tract in the pons would, of course, cause hemiplegia. If it extended back far enough it could give hemianesthesia, but it would not damage the optic pathway at this level, and it would be likely to implicate some of the sensory (5th), or motor nuclei, as fifth, sixth and seventh, giving a lower motor neuron type of paralysis of the corresponding muscles.

A lesion at the base of the mid-brain could destroy the pyramidal tract, giving hemiplegia, and the adjacent optic tract giving hemianopsia, but such a lesion would not cause hemianesthesia unless it extended far backwards through the nigroid substances to the mesial fillet. In that case it would also implicate the third nerve giving paralysis of several of the eye muscles. It would also infringe upon the red uncleus, and its connections from striate body and cerebellum giving rise to such symptoms as hemitremor and hemiasynergia.

Of course, the destruction of the entire left motor cortex would give a total hemiplegia, and by extending backward beyond fissure of Rolando to destroy the post-central convolution would cause also hemianesthesia of the cortical type. Such an extensive cortical lesion is rare and should it occur it would not cause hemianopsia.

In fact it is well known by neurologists that a cortical paralysis is usually monoplegic in type while capsular paralysis is usually hemiplegic.

Much of the focalizing evidence in this case pointed clearly to a capsular lesion, which was Dr. Houlton's diagnosis, yet certain atypical features came in, as so often happens in diagnosis, to complicate the situation and to raise doubts as to the correctness of the diagnosis.

For example, the convulsion began as Jacksonian or cortical in type. That justified the exploratory craniotomy, which further would decompress a desperate case. The post-mortem and operative findings showed that the probable cause of the clonic convulsions was a mechanical irritation of the cortex through swelling.

The absence of choked disc recalls an important neurologic point, viz., that it is possible to have brain tumor in an advanced stage without chocked disc. In fact this general symptom is lacking in about twenty per cent of cases of brain tumor. A similar observation might be made in reference to the absence of vomiting.

Another sort of atypical feature was evident in the partial paralysis of the muscles of mastication and phonation. Such bilaterally paired muscles which usually functionate together throughout life, as muscles of respiration, deglutition, phonation, etc., being both innervated from each side of the brain, are in the majority of cases not paralyzed from a unilateral cerebral lesion.

It generally requires, therefore, bilateral damage to effect paralysis of muscles so synergized in bilateral function. It is only in exceptional cases that a unilateral lesion gives rise to a corresponding partial paralysis of such groups of muscles on the paralyzed side. Moreover, this paralysis is usually transient if the patient survives. The usual type seems to have been illustrated by the paralysis of the late Woodrow Wilson, whose marked hemiplegia apparently left intact such muscles as those of phonation, respiration, deglutition, etc The eye muscles almost invariably escape functional damage in capsular hemiplegia, on account of the bilateral innervation of each. In Dr. Houlton's case the right eye was somewhat paralyzed, and esophoric contrary to the general rule in such cases.

The facial defect in this case was rather typical. The exaggerated deep tendon reflex with the presence of extensor reflexia and hypertonia were also typical and need no comment.

Another unusual feature in this case was the total paralysis of the right leg. Usually patients even in total hemiplegia after a few weeks are able to walk about more or less, partly it is believed as a compensatory extrapyramidal nerve control, and partly as a matter of skillful manipulation of the paralyzed side by the unaffected side of the body, the paralyzed half being swung forward in walking around the well leg as an axis of rotation. In this case it would seem that the inability to walk at all after spastic paralysis involved the lower extremity was caused by the general debility resulting from the progressively enlarging malignant tumor.

The fact that the convolutions in this case, were flattened so much more on the left side is interesting as an indication that an increase of pressure in the region of one cerebral hemisphere does not necessarily lead to equal pressure of the opposite hemisphere through lateral transmission across the midsaggittal plane. Auerbach might use such a fact as an argument for his theory as to the cause of migraine, viz., that this hereditary affection is caused by disproportion between the capacity of the cranial cavity and the volume of its contents, so that hemicrania, he believes, is due to an increased pressure caused by a dilation of the intra-cranial vessels on the affected side giving rise to an increase of pressure on the affected side. Of course, it has never been proved that a dilation of the cranial vessels actually occurs in this condition.

My experience with reference cases at the Mayo clinic and elsewhere have led me to believe that this type of case is not usually discussed as fully in general medical meetings as its serious importance for general practitioners demands.

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CLASSIFICATION OF GOITRE WITH SPECIAL REFERENCE TO IODINE THERAPY*

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In 1913 Plummer differentiated hyper-functionating adenoma from exophthalmic goitre. One year later Kendall succeeded in discovering the active principle of the thyroid gland, thyroxine. Then, in 1922, Plummer taught us the use of iodine in toxic goitre. With the advent of these achievements, coupled with the improvement in surgical technique and the fact that patients are coming for earlier operations, goitre surgery at the present time can be placed in the same category as that of any other type of major operation.

The use of iodine in goitre dates as far back as the 12th century when Roger of the University of Salerno found the value of the ashes of sponge and seaweed in this condition. However, it was not until late in the 19th century that it was found that iodine was the principal agent in the various preparations intended to prevent the development of endemic goitre and cretinism.

In 1904, and again in 1910 and 1911, Kocher published a series of articles on the effect of iodine in the different types of goitre. He was the first to successfully treat the type of goitre which we today classify as the vascular colloid goitre of childhood and adolesence. He also noted that the more "meaty" and deeply encapsulated adenoma would not decrease in size but often showed a tendency to hyperthyroidism as a result of the administration of this drug. This fact was carried further than he had intended it to be and as a result the careful workers of his time thought that iodine was detrimental in the treatment of all types of goiter except the one previously described. This fact held sway until Plummer succeeded in demonstrating that we were laboring under false impressions.

In attempting to discuss the use of iodine in goitre we will first give Plummer's classification of goitre and then try to tell the use of iodine in these various types. They are as follows: (1) Colloid or simple goitre. (2) Adenoma without hyper-thyroidism. (3) Adenoma with hyper-thyroidism. (4) Exophthalmic goitre. (5) Thyroiditis. (6) Malignancy.

DIFFUSE COLLOID GOITRE

This type of goitre is a physiological enlargement of the thyroid gland in adolesence and most frequently appears in young girls at puberty. It consists of a soft globular symmetrical enlargement of the neck which is due to the distension of the follicles by an excessive deposit of colloid. It does not cause symptoms other than those incidental to the pressure of the growth. The basal metabolic rate is always normal, or ten to fifteen points below normal. The blood pressure is likewise normal, or slightly below. It usually disappears before the twenty-fifth year.

Marine and Kimball in 1920 demonstrated

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*Read before the Ninth Councilor District Medical Society meeting, Grand Island, February 16, 1926.

clearly the use of iodine in the cure and prevention of this type of goitre. As a preventative they gave 2 gr. of sodium iodide over a period of two weeks, and repeated this twice yearly. They claim this dosage has prevented the enlargement of the thyroid in more than 99% of the children, and decreased the size in 80% of the children, who had enlargement, in the Akron, Ohio, schools, where the test was carried out.

ADENOMA WITHOUT HYPER-THYROIDISM

The majority of these goitres are first noticed during the latter half of the second decade of life. In the beginning the growth may be so small that it is not palpable on account of it being deeply seated in a colloid gland. These adenomata grow slowly and it may take many years before they become palpable to the patient himself. They occur as single or multiple nodular masses and are always encapsulated. After a time they may grow rapidly and undergo early degenerative changes through hemorrhage within the capsule of the adenoma forming one of the clinical types of cystic, hemorrhagic or calcareous goitres. In these cases the thyroid is asymmetrically enlarged. One or more nodular tumors of various sizes may be palpated. Symptoms are rarely seen before the age of thirty.

Pressure of the growth on the surrounding structures, producing cough, hoarseness, interference with respiration and deglutition, varies in degree with the size and location of the tumors.

We recently operated upon a lady, age 45 years, who had a large goitre of this type which apparently had caused her to have a constant cough during the past four years. At operation we found large adenomata on both sides of the trachea with one directly over it, which we feel was causing pressure and reflexly producing the cough. Two weeks after the adenomata were removed, the cough began to subside, and in three weeks the patient was practically free from any such symptom.

Treatment other than operative is ineffective in causing the disappearance of the tumor. However, some of our best authorities believe there is a possibility of iodine having some effect on the small adenomata in an adolesent goitre.

Kocher pointed out long ago that iodine in this type of goitre is fraught with considerable danger because it is apt to produce hyper-thyroidism. At this time he designated this type of hyper-thyroidism as "Jodbasedow", because he felt that it had a different etiology than that of hyper-thyroidism due to exophthalmic goitre. Consequently, the administration of iodine to a patient with well developed adenomata is done with increasing risk as the age of the patient advances.

On the other hand, surgery usually offers excellent results. We have operated upon nineteen of this type of goitre since 1923 with no mortality. All these patients have made an excellent recovery and have enjoyed very gratifying results.

ADENOMA WITH HYPER-THYROIDISM

It is now definitely established that adenomata with hyperthyroidism is a definite clinical entity and differs from that of exophthalmic goitre. Plummer has pointed out that a patient who in her twenty-second year has an adenoma of the thyroid gland has a definite chance of developing symptoms of hyper-thyroidism in her thirty-sixth year. In other words, the average time from the appearance of the adenoma to the toxic symptoms is about fourteen years. The symptoms usually occur spontaneously with insidious onset and develop gradually but progressively. In this respect it differs from exophthalmic goitre, which usually comes in waves. The symptoms, as a rule, are so slow that the patient is not aware of what is going on until there is evidence of cardiac or other visceral degenerative changes. Crises do not occur. Bruits and thrills are very rare. The erratic appetite is not as marked as it is in exophthalmic goitre. There is considerable weight loss which has a tendency to grow progressively more as the degenerative changes take place.

These people usually seek medical aid on account of heart trouble. There is a tendency to hypertension in contrast to exophthalmic goitre. In hyper-functionating adenoma, there is usually a high systolic and a relatively high diastolic reading, while in exophthalmic goitre there is a rather low diastolic, rarely exceeding 75, with a comparatively high systolic. In other words, in hyper-functionating adenomata, there is evidence of true hypertension. The basal metabolic rate usually ranges between 25 up to 50 or 60, which is usually lower than that of exophthalmic goitre.

It is very questionable in this type of goitre, although the question is not entirely settled, as to whether or not iodine is of any particular value. Plummer believes that this type of hyper-thyroidism is a true hyper-thyroidism in contradistinction to hyper-thyroidism due to exophthalmic goitre. If such is the case, it would be reasonable to assume that iodine is not needed in the hyper-functionating adenoma. It is a question in his mind whether the hyperthyroid symptoms are due to an excessive amount of thyroxine thrown out from the adenoma, or whether the adenoma is a compensatory measure, and later has a tendency to stimulate the surrounding tissue to manufacture and throw out more thyroixine than is necessary for the tissues of the body. Assuming either or both of these hypotheses to be correct, it is again quite evident that iodine from a theoretical point of view would be of no value in the treatment of this type of hyper-thyroidism. Surgery again offers the best treatment although the risk in this type of goitre is naturally high.

Pemberton gives his mortality in this type of case as running between two and four per cent. Since 1923 we have operated upon four of this type of goitre without a death. We did not administer iodine either pre-operatively or post-operatively in any of these cases.

EXOPHTHALMIC GOITRE

Perhaps most of you are quite familiar with the syndrome of exophthalmic goitre; consequently, we will only briefly describe the symptoms. The onset of the disease is usually gradual, although it may be abrupt, terminating fatally in a few months. More often the disease appears in waves followed by varying periods of complete remission which may last for months.

The patients usually complain of tachycardia, marked shortness of breath, sleeplessness and restlessness, sweat easily and cannot stand heat well. During the winter months they require fewer clothes and less bedding than others in the same household. They persistently have a voracious appetite and in spite of the good appetite they continually lose weight and strength. They have a wide pulse pressure, a fine tremor, and a moist skin. There is a symmetrical enlargement of the gland in the neck. Bruits and thrills are not uncommon. They are very apprehensive and act very much like frightened animals. Gastro-intestinal and cerebral crises are seen at times. The basal metabolic rate is nearly always very high. The average rate in our series of cases was plus 52, the highest being 110 and the lowest 26.

Iodine in this particular type of goitre is most efficacious, although it must be constantly borne in mind that it is not curative. It has a tendency to hold most of the symptoms in abeyance for a short time. We have made a practice of using Lugol's solution as recommended by Plummer, giving ten drops per day for a period of ten days to two weeks, pre-operatively and increasing this if necessary to control the symptoms. Usually there is marked improvement in the patient within forty-eight hours after the beginning of the treatment. The improvement is also more noticeable in patients who are suffering from crises. The medication lowers the basal metabolic rate 20 to 25 points within a very short time. More remarkable than the effect on the basal metabolic rate, is the improvement in the clinical condition of the patient. The extreme restlessness, nervousness and emotional irritability disappears. The facial expression immediately changes to that of quiet composure and assurance, instead of one of fright and apprehenison. There is no apparent effect upon the exophthalmous. There is an immediate and progressive gain in weight and strength, with a reduction in the pulse count. In brief, the patient is markedly improved generally.

If given post-operatively, iodine acts equally as well in that it has a tendency to abolish all acute hyper-thyroidism symptoms due to the operation. The risk of the operation is very materially lessened. Previous to iodine therapy the Mayo clinic quoted their statistics for exophthalmic goitre as 3.3% mortality, but following the use of iodine the mortality was brought down to 1.2%.

Since 1923 we have operated upon 12 cases of exophthalmic goitre. Out of this series of 12 cases we had two deaths, both of which occurred before we began to use iodine. However, it may be stated that we do not feel that iodine in either of these cases would have been of any value because in both instances death was due to accidental causes and not due to the hyper-thyroidism. In the first instance, the cause of death was an air embolus. In the second case, death was due to asphyxiation caused by a clot forming over the trachea and compressing it. The latter death could have been avoided, however, if the nurse in charge had called us when signs of asphyxiation developed instead of waiting until the patient was practically dead before notifying us.

Pemberton makes the following statement: "The high operative risk attendant upon surgery of the thyroid in exophthalmic goitre is not due to a major surgical procedure, such as hemorrhage, infections and embolism, but to the acute intensity of hyper-thyroidism induced by the operation and to the frequency of pulmonary complications due to the patient's lowered resistance''.

THYROIDITIS

Bacterial thyroiditis is caused by the invasion of a micro-organism into the thyroid gland. The diagnosis is made by a history of the acute onset, usually in a young person. There is a feeling of contraction about the neck. The thyroid is tense, hot and tender; it may be slightly fixed to the surrounding structures. Often there is involvement of the laryngeal nerves manifested by a change in the voice. Deglutition is painful on account of the necessary movements of the larynx. We know of no record where iodine has been used in this sort of condition. However, it is safe to assume that iodine would be of no use in the treatment of thyroiditis.

MALIGNANCY

At one time carcinoma of the thyroid gland was considered to be a rare disease, but of late years it is being diagnosed more frequently. Diagnosis of this condition in its early stages is almost impossible. However, some of the first symptoms to develop are the following:

A board-like resistance and fixing of the gland. The gland may be somewhat irregular in contour. Subjective symptoms usually appear due to pressure on the trachea, esophagus and the recurrent laryngeal nerves. Later the general signs of malignancy, such as loss of weight, cachexia, etc., appear. It goes without saying that iodine in this condition is of no value whatever from a curative point-of-view.

Within recent years the type of hyper-thyroidism designated by Kocher as "Jodbasedow" is gaining prominence due to the excessive and indiscriminate use of iodine. Jackson, under the title of "Iodine Hyper-Thyroidism", recently reports thirty-eight cases which he feels were entirely due to the administration of iodine. At the Mayo clinic there are also quite a number of cases of this type on record. The syndrome of hyper-thyroidism as described by Jackson is as follows: "It is not typical of either adenomatous or exophthalmic hyper-thyroidism, and yet presents many symptoms common to both. It may develop in children as young as ten years, or in elderly persons who have adenomatous goitre. It is uncommon before the age of thirty years".

The average age of his series was thirty-five years. The same tremor, the loss of weight and strength, tachycardia, restlessness and insomnia occur paralleling in these respects exophthalmic goitre and hyper-functionating adenoma. The onset of symptoms and loss of weight are rapid and more severe than in toxic adenoma. In this respect iodine hyper-thyroidism rather closely resembles exophthalmic goitre. The nervousness is of a rather peculiar type and at times approaches delirium. The loss of weight was very marked in his series, fifty pounds in two months in two patients. The ravenous appetite characteristic of exophthalmic goitre does not occur. Thrills, bruits and exophthalmus do not occur. The pulse pressure is elevated, but the blood pressure findings closely resemble those in hyper-functionating adenoma. The same is true of the basal metabolic rate, the average in his group being plus 31, as compared with plus 29 in a group of cases of hyper-functionating adenoma and plus 54 in a series of exophthalmic goitre.

The popular interest which has been aroused in the treatment of goitre by iodine may be more disastrous than we have anticipated unless something is done to educate the public relative to the use of iodine in the various types of goiter. If a physician is in doubt as to the diagnosis of the type of goitre with which he is dealing, then he had better make it a rule not to use iodine in the treatment of any nodular goitre after the patient has reached adult life. Our daily papers and magazines are broadly advertising various concoctions for cure of goitre, most of which contain iodine in some form. Iodized salt is being extensively recommended for table use by wholesale grocers and druggists in the treatment of goitre. If the iodine propaganda is not restrained in some way, we no doubt will begin to see the harmful effects of its use in the near future. Consequently, we should use every effort to correct the erroneous idea that iodine is a specific for all goitres. We should teach the public that various *types* of goitre exist and that a correct diagnosis is necessary before attempting the use of iodized preparations.

Furthermore, physicians should remember that iodine is a specific in the treatment of colloid goitre of childhood and adolesence. In exophthalmic goitre it is not curative but is of extreme value in controlling the symptoms until some measure can be taken to eradicate the goitre. In adenoma without hyper-thyroidism it is of little, if any, value, and might produce hyper-thyroidism. In toxic adenoma it is doubtful if it is of any use whatever.

—Clinic Bldg., Grand Island, Neb.

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STUDY OF PNEUMOTHORAX*

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In discussing a subject of this nature it is not my object to bring before you something new, but more to consider the value of such a procedure, with some of its advantages and shortcomings.

History: James Carson, of Liverpool, probably deserves the credit for being the first to see the possibilities of lung compression. He advocated pneumothorax as early as 1821, and suggested its use in lung abscess, later in pulmonary tuberculosis, where limited to one side. He also suggested its use in hemorrhage. In considering the principles upon which he based this therapy, we find they were about as they are understood at present. He felt that the lung could be put at rest in this way, as a result of which healing would progress more rapidly. He also realized the dangers, especially in abscess or hemorrhage, when he felt the compression should be gradual in order to avoid flooding the bronchial tubes, or sudden collapse.

Other Procedures: Since then much has been done in the way of thoracoplasty and phrenicotomy, etc., all in an attempt to compress the lung more permanently. I will not attempt to discuss the latter in detail.

Pneumothorax has a limited field and in many cases is used only as a preliminary to further surgical work, while in others, because of certain complications arising, it must be replaced by a more radical procedure.

Site of Lesion Best Adapted to Pneumothorax: In tuberculosis pneumothorax can best be used where the disease is limited largely to one side, and usually better where the lesion is not too near the periphery of the lung. In some cases with cavity formation, if the wall is much thickened, complete collapse may not occur by this means. On the other hand, if the lesion is near the periphery there is danger of tearing, or the process rupturing through the viscial pleura and causing a fistula—sudden pneumothorax with its complications.

Complications, or Some Causes of Failure: Adhesions are one of the big factors which cause failure in this type of treatment. With many adhesions you fail to have the compression desired. There are times, however, when one can stretch bands of adhesions to such an extent that they hinder very little. I have seen a case, an autopsy, where a pneumothorax had been done and the patient died of another condition, where the lung was well compressed and a long, slender band extending from chest wall to apex of the lung was found. This shows that we can obtain compression of the lung in spite of adhesions if they are not too extensive. In introducing gas under these conditions, however, the process should be gradual, because tearing of lung may open some abscess beneath, causing a spontaneous pneumothorax. Traumatic cavity ruptures cause a more virulent infection than the spontaneous rupture.

In one of the cases in which we tried pneumothorax, we had a pneumonic tuberculous consolidation of the right lower lobe. We made several attempts to introduce air in the axillary area away from the most extensive pathology and only with considerable difficulty were we able to give more than 100—150 c. c. We felt that if we didn't introduce more, this type of treatment was a failure, so finally attempted to give air posteriorly more nearly over the pneumonic area. We succeeded in giving 600 c. c. and have repeated giving as high as 900 c. c. We find by introducing air at this site we are able to compress the lower lobe quite well. One complication has arisen—at the site of two of the needle punctures there was a small collection of grey, watery substance, which drained. At these sites there could be heard sounds as though air were passing through a small opening. Some bulging was present on coughing or refilling. These were dressed and strapped tightly. We were afraid to stop our refills for fear that on expansion of the lung more extensive adhesions would form and we fail entirely. We have continued to give air at regular intervals, and although we seemed to have a small fistula beneath the skin, probably of tuberculosis origin, the openings have finally closed. I am unable to say what the final outcome will be in this case, but her temperature has been less, she eats better, and has been gaining weight. The cough has practically disappeared, c not more 1 ounce of sputum a day. This is a case where we have rather extensive adhesions and a thick pleura, but although we are only able to partially collapse this side, we are able to compress the active lobe. Something more drastic in the way of a phrenicotomy or thoracoplasty may be indicated later, but we feel that we are improving her general condition if this is necessary.

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*Read at the Elkhorn Valley Medical Society meeting Fremont, Nebr., February 10, 1926.

Necessity for Refills: When one considers treatment in this way, he must remember that it means refilling at least from two to five week intervals over a period of from one to five years. This in itself is often a great drawback, especially if the patient is not able to return to some place for the refill, or if the time for the refill is neglected.

Result If Not Carried Through: If the lung is allowed to expand after a pneumothorax and before healing has taken place, more adhesions are apt to form between parietal and visceral pleura, under which conditions the entire process is reactivated and further treatment in this way is impossible.

This raises the question as to when the process is healed. One cannot tell absolutely, and if not entirely healed, or an old cavity is not entirely obliterated and the contracted lung allowed to expand and become adherent to the chest wall, the tugging of the latter on the old process may tear or open the old abscess causing reactivation.

During the period of pneumothorax, there are some changes in the chest wall in that it flattens, the ribs are close together and the diaphragm rises some, but in spite of this considerable stretching may be necessary before the lung which is now contracted, will be able to fill this space.

Sometimes the lung may not be able to stretch enough, leaving a partial pneumothorax, and as the air is absorbed the pressure becomes less and less, resulting in pain, dyspnoea, considerable tugging on the encapsulated lesions, bronchiectasis, and sometimes an exudate. Under this condition refills may be necessary indefinitely, or what will be more permanent in relieving this and the above condition would be phrenicotomy, thus raising the diaphragm or a thoracoplasty if this is not sufficient or an emphyema exists.

Because of the above difficulty with adhesions or the inability of the lung to completely fill its pleural space, many advocate a phrenicotomy in conjunction with the pneumothorax.

Other complications will arise if one continues treatment in this way. In about fifty per cent of the cases serous effusions can be demonstrated. According to McKinnie, five per cent of these become purulent. The longer the pneumothorax is maintained and the more widespread the disease, the more frequently we have an empyema as a complication.

These are but risks which of necessity must be accepted in these chronic maladies, which are best met with by judgment gained from experience.

In spite of the above disadvantages, pneumothorax is a real beneficial aid in the treatment of tuberculosis and allied conditions. Many advocate it even without waiting until the ordinary treatment has failed, feeling that if you wait until then, complications arise which do not allow good compression.

I would like to give a report of the following case, to show what remarkable results one may have.

CASE REPORT

Mrs. E. E. K. White. Age 28. Seen first on April 23, 1925.

Married four years. Three children, youngest six weeks old. Had appendectomy six years ago.

Had been having present trouble five and one-half years, characterized by attacks of pain or distress in the right upper abdomen, especially radiating to back and sternum up to neck. Accompanied by T. 102-104, and sweats, cough and vomiting. No nausea or vomiting except when coughing. Never blood. No blood in sputum. Weight has varied but with downward tendency, best weight having been 130, present 115½.

In brief, the examination showed an anemic appearing patient with temperature 101. Definite changes in physical findings were found in both lungs, more especially over right where there was suggestion of cavity formation.

Sputum examinations showed tubercle bacilli.

Roentgen examination showed an extensive lesion involving the right upper lobe. Almost the entire lobe is occupied by caseo-cavernous areas of degeneration. Separating the right upper lobe from the rest of the lung there is interlobar thickening which completely walls off the pathological process in this area. However, the right leaf of the diaphragm is almost fixed. The right cardio-phrenic angle is obtuse. There is some retraction in the right lung, which draws the heart to the right. The left lung is negative except for scattered areas of lobular thickening in the upper left lobe. Because of the freedom from pathology in the left lung and also in the lower portion of the right lung, one might think that this was non-tubercular; but the character of the pathology described leads me to think that we have a mixed infection, tubercular and pyogenic, in the right upper lobe.

This patient was taken to the hospital and put under routine treatment. Under this care there was no particular change as far as the chest was concerned. The temperature ranged from subnormal to 99 in the a. m. and from 100-101.6 p. m. these following two weeks.

During the 3rd week the temperature reached 104 accompanied by pain in the right upper quadrant.

On May 26th 375 c. c. of air was given in the right pleural cavity. The temperature dropped to normal in four days, then went up to 99.2. June 3, 300 c. c. of air given. On the 6th, 7th and 8th, T. above 101. June 10, 400 c. c., on 11th T. 103, gradually fell to 99.8 on June 15. June 16, 500 c. c. T. reached normal June 18. Between this time and her discharge her temperature remained normal. During this interval she had six refills. She had gained 8½ pounds, weighing 126½.

Since then she has been returning at regular intervals for the refill. Her temperature has been normal, she is able to be up and about to a limited extent, and now weighs 148 lbs.

The roentgen findings are interesting in this case, because it shows a band of adhesion between the chest wall and the compressed lung.

Re-examination on September 3rd. Roentgenograms were made showing the entire chest in the usual anteroposterior position, before and after the injection of the right pleural cavity. Before the injection, the upper portion of the lung shows collapse and closure of the lung cavity. Dense bands of adhesions extend from the pleural surface of the collapsed lung to the wall of the thorax. After injecting 1500 c. c. of nitrogen gas low in the right pleural cavity the entire lower lobe of the lung is about one-half collapsed. With the patient in the upright position, the free pleural cavity follows the perimeter of the thorax. If the patient is in the recumbent position or the Trendelenburg position the gas moves about and seeks its highest level. This demonstrates that the lower lobe is free and partially collapsed; and that the upper lobe is adherent to the thoracic cavity but allows almost complete collapse.

Re-examination September 25, 1925. A roentgenogram was made showing the chest in the usual anteroposterior position. The upper lobe collapsed. There is a small area representing the collapsed lung, which contains the tuberculous pathology. The middle and lower lobe have fully expanded below. The collapsed upper lobe is of interest in that it contains but little, if any, air-bearing tissue. It looks atelectatic, and from it, radiating in several directions, are dense, adhesive bands which support the collapsed lobe in the upper portion of the thorax.

This case is interesting in several ways. First the rapid gain in weight and strength, cessation of fever. From the standpoint of compression the upper lobe which was so extensively involved collapsed well in spite of the narrow bands of adhesions. Also as the air absorbed the lower lobe seemed to expand while the upper remained collapsed.

In cases like the one reported, pneumothorax has many advantages, first the operation in itself is only a minor procedure. The patient although quite ill need not have her circulatory or respiratory mechanism upset. Aside from avoiding shock, the amount of air can be injected in definite amounts, at the intervals desired, thus causing a gradual compression, regulating the auto tuberculization. In cases like the one reported, you cannot expect any better results with any of the other methods and in cases less favorable it may give the patient a chance to build up and increase his resistance sufficiently to be able to stand one of the more radical procedures. It also has another advantage in that it allows the thoracic organs to accommodate themselves to conditions present after radical procedures.

Some feel that we may expect better results from pneumothorax when combined with phrenicotomy. This may be true especially when the lower lobe is involved. Bronchiectasis may come in this class. When phrenicotomy is done, refills are less frequent, the diaphragm rises higher in the pleural space thus making the latter more nearly the size of the contracted lung. Phrenicotomy is indicated where on permitting the lung to expand, it is unable to completely fill the pleural space.

Pneumothorax can be used in other conditions as an early lung abscess or bronchiectasis under either of these conditions if they have not been permitted to progress so far that the walls are rigid this procedure should help by emptying the cavity of its infected contents.

The difficulty with many bronchectatic conditions is that they are often bilateral. Even under these conditions it is possible to give some air in each side thus just partially aiding in the emptying of the spaces.

The following is a case of tuberculosis with an associated bronchictasis.

CASE REPORT

Mrs. K. H. White. Age 65. Widow. Seen August 12, 1925.

This patient dated her present illness back two years, beginning with a cold and later a cough which never disappeared. The next few months following, the cough was of the paroxysmal type, as often as three such attacks an hour each ending in bringing up a large amount of clear mucus, having no special odor. During the dry, warm weather she would feel pretty well but never entirely free of the cough. More recently the sputum has contained yellowish portions and cough more severe with damp or cold weather. Has been accompanied by sharp pain in the right axilla, which was intensified by the cough. Has been losing some weight. Appetite and bowels fair.

Examination showed a fairly well nourished patient with definite changes of the whole right side of the chest. Both large and small rales were present over the entire front side. Fine rales over the left apex.

Roentgen examination gave the following report: Neither apex clear. The leaves of the diaphragm move slightly. Respiration is largely costal. The complemental air spaces are shallow. There is involvement of the parenchyma and the great trunks of the right upper lobe, characteristic of tubercular pathology of the fibrous type. The lower lobe on the same side is thickly infiltrated and very fibrotic. The left lung is fairly clear except in the hylum shadow and lower lobe.

Bronchiectasis is present in both lower lobes and the right upper lobe is probably infected diffusely with tuberculosis.

Sputum examination showed many tubercle bacilli.

The patient was placed in the hospital under the usual treatment including calcium and parathyroid. On 8/20, 400 c. c. filtered air was introduced into the right pleural cavity. At first it entered with considerably difficulty, then went in easily.

8/25, 500 c. c. was given—no reaction.

8/28, 700 c. c. was given.

9/5, 650 c. c. was given. After this refill patient has some fever, loss of appetite, as well as some loss of weight.

9/15, 400 c. c. given.

The refills have been continued. Usually after each there is a cough for a short time. She is now beginning to feel stronger, has less cough, is having improvement of appetite as well as gain in weight. At present the cough becomes worse as the lung expands.

There is some question as to how much improvement we can expect with treatment along this line alone. She would probably have less cough and better compression if a phrenicotomy were also done on this side. Still, we know there is some change, probably bronchiectasis of the lower lobe on the other side. If we can produce enough compression by the pneumothorax alone, we can probably serve our patient better and that is the theory upon which we are working. If something further need be done, she is at least in better condition for the ordeal.

Thoracoplasty is almost never used where a satisfactory pneumothorax is obtainable.

In summary, I feel that pneumothorax has a real place in the treatment of certain cases of tuberculosis, especially where limited to one side and adhesions not so extensive that compression is limited.

I also feel that pneumothorax with or without phrenicotomy has a place in increasing resistance even when something more radical must be contemplated later.

In all of this study, one important aid must be remembered, and that is a careful study, in the way of physical examination and roentgen examination.

Pneumothorax can be used in conditions like lung abscess, bronchiectasis or pulmonary hemorrhage with satisfactory results.

LABORATORY SERVICE*

W. B. MOODY, M. D., OMAHA, NEBR.

The problem of laboratory service depends so definitely on the size of the hospital and its location that it is difficult to outline a plan satisfactory to all requirements. The larger the hospital the easier is the organization and development of the laboratory. Those hospitals near a large city or research center can get help more easily than can those more isolated. The ideal arrangement of course, is a fully equipped laboratory with capable technicians, supervised by a competent clinical pathologist. Among the smaller hospitals and those in more outlying towns, this is impossible and it remains to develop as satisfactory a scheme as circumstances permit.

Where a clinical pathologist is not available, the strength of the laboratory service is in direct proportion to the skill and aggressiveness of the technician and it is in this regard that many hospitals are in error. In numerous instances the authorities will take a graduate nurse, give her a short course of instruction and place her in charge of the laboratory. Or an individual is selected who has taken a short course in laboratory technique but who has had little practical experience. It is far better to obtain a well trained, competent technician at a good salary than to attempt economy. By curtailing elsewhere and by judicious management and volume of business, the clinical and financial results may be made satisfactory. In this connection it might be added that there is need for giving graduate technicians practical application under supervision so as to improve the quality of work now done.

To carry on a satisfactory laboratory service a small well lighted room located as near the surgery department as possible is essential. In smaller hospitals one technician is generally sufficient and if the volume of work be too great, a nontechnical assistant may be added, to assist in cleaning. Adequate equipment for routine work is essential. Results of all tests should be recorded on the patients' chart and a copy kept at the laboratory. To facilitate speed in recording and keep the charts from being too bulky, special sheets may be prepared with items printed under separate headings and space marked off so that results of subsequent tests may be added without need for an extra sheet. We have combined all our data on both sides of two sheets and it is only rarely that more than these are required. All requests for laboratory examinations should be sent in writing on special blanks.

Material necessary for equipment is not necessarily expensive. Some few larger items may require special consideration but the necessary glassware and smaller articles may be purchased and replenished with not too great an investment. Depending on the demands, from two hundred to two thousand dollars could be spent on original equipment and by careful management the upkeep should not be more than twenty-five to fifty dollars per month.

Apparatus and chemicals necessary for routine clinical examination of blood, urine, gastric contents, stools, etc., are not expensive nor is the upkeep great, and modern methods have greatly simplified bacteriology for nearly all media can be purchased in special form, requiring but little labor in preparing for use. A suspension of typhoid bacilli, killed by formalin may be prepared and kept on hand ready for use.

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Serology, chemistry and metabolism require more than average skill and training and a more complete and expensive equipment. The valuable information derived, however, should lead hospital authorities to establish these divisions as soon as funds will permit. Once installed the upkeep is small. The Wassermann test is the greatest problem, requiring skillful technique and a continual supply of fresh materials, more or less expensive. The advent of the precipitin test has changed this aspect somewhat and should aid in simplifying our problem. In good hands the precipitin test is practically as accurate as the Wassermann and because of its simplicity and economy should be more widely used. The antigen may be purchased on the open market or made in the laboratory. The technique requires only dilution of the antigen and mixing with patient's serum.

The preparing for histologic examination of tissue removed for diagnosis, should rarely be required of the average technician unless she has had especial training. It is perhaps more practical to send such material in hardening fluid to some nearby pathologist who will render an opinion. The latter should, in proportion to the number of specimens, be able to arrange for a satisfactory fee.

The American College of Surgeons has for years advocated cetrain routine laboratory examinations on all patients and urged careful compiling of full records. These examinations can be carried out in most instances at a moderate cost to the patient. Urinalysis and blood examinations are to be done on all patients. If possible at all, the routine Wassermann test on the blood should be included.

So much positive information is obtained that if all patients are so examined, fewer mistakes in diagnosis and treatment will be made. The laboratory should be prepared to carry out the usual routine analysis of gastric contents and stools and the simplicity of the 'phthalein test for kidney function makes it an easy routine procedure. Similar methods are now being applied to hepatic disease. Extensive quantitative blood chemistry is not essential. Sugar estimations are valuable and not difficult. Nitrogen retention can be demonstrated with simple apparatus. Further tests are more difficult, require more expensive materials and frequent preparation of standards. For routine examination, there is not sufficient information obtained to warrant their recommendation.

Determination of the basal metabolic rate in patients with thyroid disorders is of definite assistance. Installation of the necessary apparatus depends entirely on the demand. The equipment is not expensive but the test requires considerable time of the already busy technician and it seems hardly feasible to include this unless there are sufficient examinations carried out to keep the cost from being prohibitive. The electrocardiagraph is a valuable adjunct in the care of cardiac patients but the expense of the apparatus and skill in operating, makes it almost out of the question for the small hospital. It is better to concentrate on routine tests, quickly and inexpensively carried out with maximum benefit to doctor and patient, assuring accuracy in technique and interpretation rather than to acquire expensive apparatus to be used only at long intervals. In this respect, attending physicians can be of great service by closer cooperation with the laboratory. Occasionally a doctor will suggest some test which is of personal interest only. The technique may require purchase of new apparatus, chemicals and take much time in preparation. The value of the result and cost to the patient is out of proportion to that of other tests and frequently gives rise to objections to the charge, such that the laboratory must bear the expense. Where the margin of profit is small, this is a burden. If the procedure is to be routine, then the situation is altered. Doctors should also bear in mind that tests only occasionally performed are sometimes woefully inaccurate and useless.

In every instance possible, the work of a hospital laboratory should be directed by a competent clinical pathologist. Where the volume of work and the returns therefrom are insufficient to supply compensation, it may be possible to obtain some one interested in another branch of medicine. On part time at the hospital and with some assistance from other members of the staff, it is often possible to meet the situation. When this is not feasible, the only alternative is laboratory supervision by some member of the staff competent to render aid. An internist or surgeon may have had sufficient training to aid in the organization and development of service and to assist in making proper diagnosis. It is not fair to place any responsibility for diagnosis on the technician. Few are sufficiently trained. Physicians are too ready to accept a laboratory report without knowledge of the manner in which the test is carried out, and the result may make for mistaken diagnosis.

I feel that a laboratory should be entirely self-supporting and also that the results should not be too great. If careful account of receipts and expenditures be kept, there is little need for the laboratory to be a burden on the hospital budget. The initial outlay for a laboratory is rather expensive but the upkeep need not be great and the two can be kept within the limitations of the hospital. In this respect as has been mentioned, the full cooperation of the attending physicians is of great assistance in maintaining proper balance of work and expense. A system of fees for laboratory work should be installed which will pay for the maintainance and permit a small profit as a sinking fund towards expansion. As the profits increase, the fees may be reduced so that the cost to the patient will not be abnormal. A greater number of examinations at small cost is to be desired and by this means, adequate returns are assured.

There are at least three good methods for charging patients for laboratory service.

1st. To include all laboratory expense in the charges per room or bed, either by means of a flat fee or by adding a percentage of the cost of the bed per day. This method has in many instances proven satisfactory. It eliminates all discussion over excessive fees and permits the doctors to order tests without expense to the patient. However, it necessitates an apparent increase in charge per patient, per day, thus making the rate seem higher than that in other hospitals. Furthermore, by this means, some patients unfortunate enough to have to remain at the hospital an abnormal length of time, are forced to pay a percentage to the laboratory out of proportion to the work done for them. Perhaps modifications of this scheme could be developed to include the laboratory fee in the room charge and discontinued after certain periods or after the first week the amount reduced.

2nd. To make a separate charge for each individual test. This entails an increased amount of bookkeeping and permits of frequent objections on the part of the patients, claiming that this or that test was not made. Further, it restricts the doctor somewhat in his desires for work by attempting to keep the patient's hospital bill at a minimum.

3rd. To have a flat fee charge that include much of the routine tests and extra charges for certain special tests. This permits frequent routine procedures without extra cost to the patient, relieves the doctor of any limitation and assures greater accuracy through repitition. Our experience at the Methodist Hospital with this method has proven satisfactory.

A flat charge of two dollars is made to all patients, (to those in the hospital less than twenty-four hours, or for tonsillectomy only, or where a minimum of laboratory work is done, one dollar). This two dollar fee includes all routine examinations of urine, blood, sputum, gastric contents and stools as long as the patient is in the hospital. It includes some liver and kidney functional tests. Also all general bacteriological examinations for diagnosis. And it includes routine gross and histologic examination of tissues removed at surgical operation.

Some of our special charges are—Blood Wassermann $3.00, spinal fluid examination $3.00—(this includes cell count, proteid, colloidal gold and Wassermann). Basal metabolism $5.00—complete blood chemistry $2.00—vaccines $3.00—guinea pig inoculations $5.00. For repeated tests of blood chemistry and metabolism, special rates are made.

SUMMARY

The laboratory of the hospital should be equipped to carry out as many routine tests as the limitations of the hospital will permit. Adequate supervision by trained men is essential. No responsibility for diagnosis should be left to the technician. Better understanding and cooperation between attending physicians and laboratory is urged. The laboratory should be self-supporting by means of minimum charges, encouraging a large volume of work rather than higher fees for fewer tests.

Tests should be repeated frequently to assure accuracy. As income permits, new apparatus should be purchased to keep the laboratory up to date.

A LESSON FROM OUR LEGAL BROTHERS

"Did you ever notice that lawyers seldom say anything unkind about each other? They may scrap in court, oftentimes for the effect upon the clients or jury, but ten minutes afterward they will go out of the court room arm in arm and head for the nearest tobacco store, where one treats the other to cigars (Jour. of the Indiana State Med. Assn., July, 1925). Medical men should emulate the example. Too often they speak ill of each other to patrons, or by a shrug of the shoulder and silence they express contempt or criticism. Why can't we uphold each other better in every way? In making this plea we are referring to the ethical and reputable medical men. We are not called upon to uphold the skunk in the medical profession any more than the reputable lawyers uphold the shyster lawyers."

MODERN ASPECTS OF NUTRITION: THE PATHOLOGY OF MALNUTRITION

13. Acid-Base Equilibrium with Reference to Ketogenesis and Antiketogenesis.

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INTRODUCTION

We shall now consider how a deficiency or insufficiency in carbohydrate brings about a disturbance in the acid-base equilibrium. Clinically two distinct types of acidosis are well recognized. One type is the result of the retention of acid metabolites, which bring down the alkaline reserve. This retention may occur in nephritis when the eliminative function of the kidney is damaged, or in mechanical obstruction to urinary flow, as in the case of a hypertrophied prostate; in fevers, especially scarlet fever, when bacteriotoxins play more or less havoc to the renal organs; in cardiac disease when the circulatory stasis interferes with the rapid elimination of fixed acids from the blood by way of the kidneys and of volatile acids by way of the lungs; in deficiency disease, as in beri-beri, scurvy and pellagra, especially when the heart and the kidneys are involved. The other type of acidosis is not due to retention, but to the formation of characteristic bodies resulting from the incomplete oxidation of fat. The acidosis resulting from incomplete oxidation of fat occurs in the absence of a sufficient quantity of glucose. This acidosis is in reality a disturbance of intermediate metabolism. Since the products present in the blood and urine in this form of acidosis contain the CO group or the ketone group, the term ketosis or ketonemia is frequently applied to it. The ketone bodies associated with ketosis are diacetic acid, CH_3COCH_2COOH, and acetone, CH_3COCH_3. The non-ketone body associated with ketosis is beta-hydroxy butyric acid, $CH_3CH(OH)CH_2COOH$. It is this acid and the diacetic acid present in ketosis that cut down the alkali reserve of the blood.

Ketonic acidosis is occasioned by lack of carbohydrate available to the organism in order to prevent the formation of ketone bodies from fat. Ketosis, therefore, is to be expected as a result of starvation, in persons, especially young ones, subsisting on a carbohydrate-poor diet, and in diabetes. Ketosis is also to be observed in fevers, in anaesthesia, and in overdosing with insulin. In these conditions glucose may be so rapidly consumed that there may be none left to prevent ketone formation from fatty acid.

In order to hold a clear idea of the mechanism of ketonic acidosis, let us review some of the essential facts pertaining to the metabolism of carbohydrate and fat.

As soon as foods enter the alimentary tract they begin to undergo decomposition. The complex foods of plant or animal nature have been built from simple unit molecules or building stones by the process of condensation. This process consists in the union of two simple molecules by the elimination of the elements necessary to form one or more molecules of water from the food units, which are amino acids, fatty acids, glycerol, and monosaccharides. Chemical compounds of high molecular weight are, as a rule, inert chemically and physiologically. Hence it is necessary to undo the work of condensation. This undoing is accomplished by the enzymes in the digestive system. With the aid of these enzymes the food molecules regain their one or more molecules of water lost during the act of condensation. Supplied with the chemical parts necessary to form complete units, the complex carbohydrates break up into mono-saccharides, fats into fatty acids and glycerol, and proteins into amino acids. Since this chemical process of splitting requires water, it is termed hydrolytic decomposition or hydrolysis. Digestion is, therefore, a process of hydrolysis. The water of its own accord is too weak to make a success of the process of cleavage. Hence enzymes such as pepsin, trypsin, amylase, lipase, and others, are pressed into service as catalysts. The biological units—amino acid, monosaccharide, fatty acid, and glycerol—are used for building new tissue and repairing old tissue. In order to build up the more complex biologic structures, the process of digestion or hydrolysis is reversed, and the building units condense in the blood and tissues with the loss of the elements of water to form bulkier biological molecules.

Foods also furnish heat. It is a well known fact that large molecules are oxidized with difficulty, if at all. Only compounds of small molecular weight react with oxygen. The end products of digestion, like the mono-saccharides or the fatty acids, are too large to undergo oxidation. Hence they must be subjected to another type of decomposition known as fragmentation. This more drastic decomposition, which takes place outside of the gastro-intestinal tract, is necessary to put the food into a condition conducive to complete oxidation.

FRAGMENTATION OF GLUCOSE

The body cannot oxidize glucose directly. There is no enzyme known that will oxidize this compound, although compounds of one or two carbon elements derived from glucose easily undergo oxidation with the aid of the enzymes present in the body. We do not know how the fragmentation of carbohydrates in the living organism takes place, but we have interesting *in vitro* facts, which give a probable insight into the biologic decomposition of the sugars.

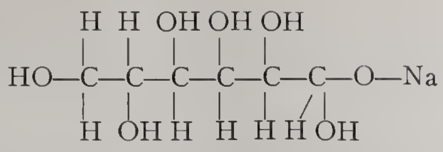
All of the mono-saccharides and some of the disaccharides are unstable in alkaline solution and are decomposed into a variety of substances. If a solution of glucose, levulose, galactose, maltose or lactose is made alkaline, it turns yellowish brown and acquires the smell of caramel. The yellow brown color of biscuits is due to the action of baking soda upon the carbohydrate present. If an alkaline solution of any of the sugars mentioned is heated the changes spoken of go on more rapidly, and the solution quickly turns brown or yellow. The stronger the alkali the more rapid the changes.

The fragments resulting from the action of alkali are unsaturated compounds, very reactive in their nascent state. They undergo changes due to tautomerism, oxidation, dehydration, and condensation. In the absence of oxygen, the fragments may be volatile substances, which, like ethyl alcohol, give the iodoform test. Among such compounds may be mentioned dihydroxyacetone, glycol aldehyde and glyoxal. If oxygen is absent or if sufficient oxygen is not present, each unsaturated fragment as rapidly as it forms, interacts with another, addition or condensation takes place, and caramel and resinous substances are produced, which are the cause of the brown color. If the solution is shaken and air passed through it, and if the alkali is not too strong, the brown color does not develop, but rapid oxidation occurs instead, and heat is liberated. In strong alkali a great number of carboxylic acids are produced having six, five, four, three, or two carbon atoms, or even one carbon atom.

If the alkali is very weak a molecular (tautomeric) rearrangement of the sugar molecule occurs, accompanied by very little or no decomposition. Thus, if glucose is dissolved in weak alkali, and allowed to stand, a small amount of levulose is formed. This fact proves that one type of sugar can be transformed into another.

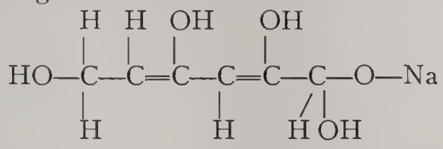
The course of carbohydrate fragmentation may be shown as follows:

In the presence of alkali glucose forms a salt. The alkali salt is more highly ionized and therefore more active than glucose itself.



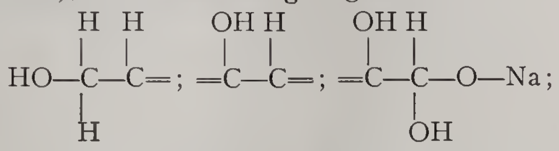
$$HO-\underset{H}{\overset{H}{C}}-\underset{OH}{\overset{H}{C}}-\underset{H}{\overset{OH}{C}}-\underset{H}{\overset{OH}{C}}-\underset{H}{\overset{OH}{C}}-\underset{H\ OH}{C}-O-Na$$

Two molecules of water are split off, and the residual glucose molecule becomes unsaturated.

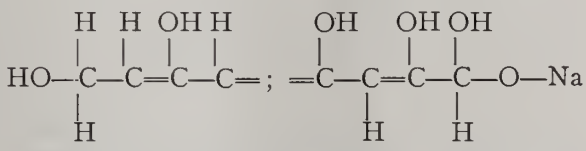


$$HO-\underset{H}{\overset{H}{C}}-\overset{H}{C}=\overset{OH}{C}-\underset{H}{C}=\overset{OH}{C}-\underset{H\ OH}{C}-O-Na$$

Subsequent rupture takes place at the unsaturated points in the molecule (at the double bonds), and the following fragments result:



$$HO-\underset{H}{\overset{H}{C}}-\overset{H}{C}=;\ =\overset{OH}{C}-\overset{H}{C}=;\ =\overset{OH}{C}-\underset{OH}{\overset{H}{C}}-O-Na;$$



$$HO-\underset{H}{\overset{H}{C}}-\overset{H}{C}=\overset{OH}{C}-\overset{H}{C}=;\ =\overset{OH}{C}-\underset{H}{C}=\overset{OH}{C}-\underset{H}{\overset{OH}{C}}-O-Na$$

The products of fragmentation of glucose are many. We may, however, mention some of the lower fragments.

glycolaldehyde $\begin{array}{l} COH \\ | \\ CH_2OH \end{array}$

glyoxal $\begin{array}{l} COH \\ | \\ COH \end{array}$

hydroxyacetone $\begin{array}{l} CH_2OH \\ | \\ CO \\ | \\ CH_2OH \end{array}$

By oxidation of some of the fragments, the following acids may be formed:

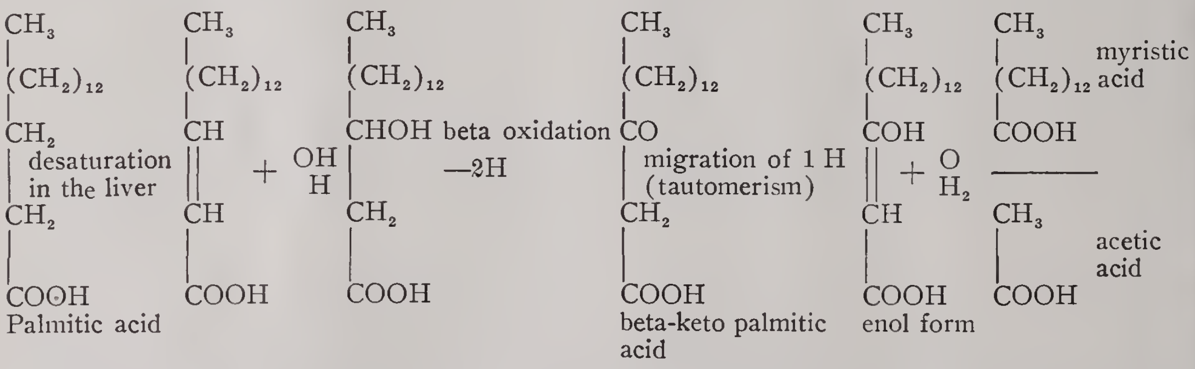
$HCOOH$	formic acid
$HOCOOH$	carbonic acid
$COOH-COOH$	oxalic acid
$CH_3-CO-COOH$	pyruvic acid
$CH_3-CHOH-COOH$	lactic acid
$COOH-CHOH-COOH$	tartronic acid
$COOH-CH_2-CH_2-COOH$	succinic acid
$COOH-CH_2-CHOH-COOH$	malic acid
$COOH-CHOH-CHOH-COOH$	tartaric acid

The weak part of the hypothesis is the alkali required in the fragmentation process. No such strength of alkali is found in the animal organism. That this fragmentation process takes place in the body there is no doubt, for a good many of the fragmentation products which can be obtained in the laboratory, occur also in the blood and urine. Salts of formic, oxalic and lactic acid are found in the urine. Aldehydes have recently been found to be components of human blood.

FRAGMENTATION OF FATTY ACID

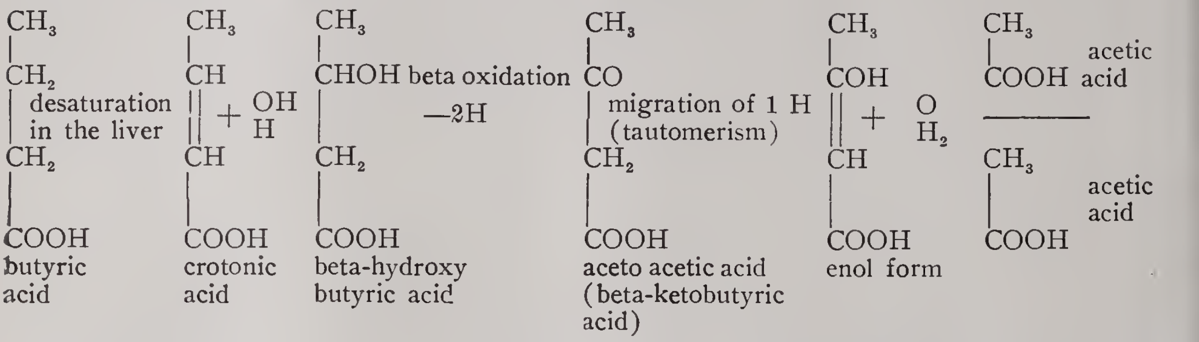
The fats are digested in the small intestine with the formation of soap (salt of fatty acid) and glycerol. Since the saturated fatty acids are inactive, they are converted into the more active compounds, the unsaturated acids. The desaturation process takes place in the liver. Fatty acids and glycerol re-unite to form neutral fats, and it is these that are found in the blood and in tissue.

The long carbon-chain fatty acid is too large to be burned in the body. Like the monosaccharide, it undergoes a series of fragmentations during which two atoms in the form of acetic acid continue to break off, leaving each time a fatty acid containing two carbons less than the one produced in the preceding splitting. The process may be pictured thus:



The fatty acid, palmitic acid, undergoes fragmentation with the formation of acids of lower carbon content. Each time a fatty acid undergoes fragmentation a molecule of acetic acid with two carbon atoms is formed, and also a fatty acid containing two carbon atoms less than the original acid compound. Thus, palmitic acid, with sixteen atoms of carbon, breaks up successively into straight-chain acids containing 14, 12, 10, 8, 6 and 4 carbon atoms. The acid with 4 carbon atoms is known as butyric acid ($CH_3CH_2CH_2COOH$). The fatty acids occurring in biologic organisms contain an even number of carbon atoms, and it follows, as a result of the metabolic processes they undergo, that they are all bound to yield butyric acid.

Butyric acid itself fragments in the same manner as the higher fatty acids. The final products are two molecules of acetic acid, which is easily oxidized in the organism to carbon dioxide and water.



In the absence of carbohydrate or a fragment thereof fatty acid does not have the ability to completely fragment and to bring about final oxidation to carbon dioxide and water. The result is that the unfragmented fatty acid reunites with glycerol to form unused fat, which makes its appearance in the blood. The lipemia of diabetes may be so great that the blood may carry as high as 30 per cent of fat.

The present belief is that fragmentation of fatty acid in the absence of sufficient carbohydrate may go on unhindered only to the stage of formation of beta-hydroxybutyric acid. This compound loses two hydrogen atoms by oxidation, giving rise to diacetic acid; and this ketonic acid loses a molecule of carbon dioxide to form acetone.

The reactions involved in the formation of ketonic bodies from beta-hydroxybutyric acid are given below in graphic form:

$$\begin{array}{ll} CH_3CH(OH)CH_2COOH & \text{beta-hydroxybutyric acid} \\ \Big| -2H \text{ (oxidation)} & \\ CH_3CO\ CH_2COOH & \text{beta-ketobutyric acid (diacetic acid)} \\ \Big| -CO_2 & \\ CH_3\ CO\ CH_3 & \text{acetone} \end{array}$$

Acetone is a volatile organic compound with a characteristic odor. It may be detected in the breath of a patient in a state of ketosis. Its presence may also be shown in the blood and urine by means of specific chemical tests.

It is a well known fact that glucose can prevent the production of ketone substances in the body. What is the manner of action of glucose that makes it anti-ketogenic? It was first suggested by Geelmuyden(1) that the most likely explanation would appear to be a definite chemical reaction between some of the fatty acid fragments with glucose or a simple compound derived from it. Shaffer(2) added hydrogen peroxide to a mixture of aceto-acetic acid and glucose in alkaline solution. The alkali present brought about fragmentation of the glucose into more active pieces. Under the conditions set forth by Shaffer, aceto-acetic acid disappeared rather rapidly at room temperature, the rate of disappearance increasing with the amount of glucose and the alkalinity.

With acetone or beta-hydroxybutyric acid a disappearance of these compounds did not take place. Among other substances tried, fructose and glucose proved ketolytic, while lactic acid had no such action. Glucose thus exhibits in alkaline solution *in vitro* a specific ketolytic action in hastening the oxidation of aceto-acetic acid. This phenomenon is believed to be an *in vitro* analogy to the action of glucose and of similar substances in preventing the formation of aceto-acetic acid (diacetic acid) and the related acetone in man. According to Shaffer's first report, an equimolecular amount of glucose is required to accomplish almost complete decomposition of aceto-acetic acid, indicating a 1:1 molecular relationship between glucose and aceto-acetic acid in the reaction. This fact gave a value of 1 for the antiketogenic ratio,

$$\frac{\text{Molecule of Fatty Acid}}{\text{Molecule of Glucose}} \text{ or } \frac{FA}{G}$$

The ordinary fatty acids are palmitic acid, stearic acid and oleic acid. The molecular weight of palmitic acid is 256; of stearic acid 284; and of oleic acid, 282. Dividing by three we get about 270 as the average molecular weight. The molecular weight of glucose is 180. If we substitute the molecular weight in grams in the above ratio, we have as follows:

$$\frac{\text{1 Molecule of Fatty Acid Fragment}}{\text{1 Molecule of Glucose Fragment}} = \frac{\text{1 Molecule of Fatty Acid}}{\text{1 Molecule of Glucose}} \text{ or } \frac{FA}{G} \text{ equals } \frac{270}{180} \text{ equals } \frac{3}{2} \text{ equals } 1.5$$

According to the above, 1 gram of glucose can completely prevent the formation of ketone bodies from 1.5 gram of fat and completely oxidize that quantity. In terms of grams, $FA/G=1.5$.

THE DIABETIC DIET AND THE ANTI-KETOGENIC RATIO

Woodyatt(3) attempted to figure out a diet for diabetics on the basis of the Schaffer antiketogenic ratio. It is a well established fact that part of the protein ingested is converted into carbohydrate and into fat, while part of the fat is converted into glucose.

100 Grams of Protein (P) yield 58 grams of glucose acid, 46 Grams of Fatty acid (FA).

100 Grams of Fat (F) yield 90 grams of fatty acid (FA) and 10 grams of glucose (from glycerol).

According to the above facts, we have a ready means of calculating the total amount of glucose (G) obtainable from a given diet, as well as the total fatty acid. The capital letter, C, we shall designate as the carbohydrate found in food as such, and not derived from either fat or protein.

$$FA=46\%\ P+90\%\ F.$$
$$G=C+58\%\ P+10\%\ F.$$
$$\frac{FA}{G} \text{ equals } \frac{0.46\ P+0.90\ F.}{C+0.58\ P+0.10\ F.}$$

Substituting the value 1.5 for the anti-ketogenic ratio, FA/G, we get:

$$1.5 \text{ equals } \frac{0.46\ P+0.90\ F}{C+0.58\ P+0.10\ F}$$

Clearing the fraction,

$$1.5\ C+0.87\ P+0.15\ F=0.46\ P+0.90\ F.$$
$$0.15\ F-0.90\ F=-1.5\ C-0.87\ P+0.46\ P.$$
$$-0.75\ F=-1.5\ C-0.41\ P.$$

Dividing by the common factor, -0.75,

$$F=2\ C+P/2.$$

The above equation enables us to calculate the diet of a diabetic whose carbohydrate tolerance has been established. Let us take a concrete example. Mrs. S. R. is a diabetic who weighs 140 pounds, or roughly speaking, 70 kilograms. Her carbohydrate tolerance is 115 grams. In order to figure out her protein requirements we include in the diet 2/3 to 1 gram of protein per kilo of body weight. If we take 1 gram per kilo, we find her protein intake will be 70 grams of protein. Fat and carbohydrate can be calculated from the two simultaneous equations:

$$G=C+0.58\ P+0.10\ F. \quad\ldots\ldots\ldots\ldots (1)$$
$$F=2\ C+P/2. \quad\ldots\ldots\ldots\ldots (2)$$

Substituting in Equation (1), the value for G, which is the carbohydrate tolerance or 115, and the value for P, which is 70, we get

$$115=C+40.6+0.10\ F.$$
$$-0.10\ F=C+40.6-115.$$
$$-0.10\ F=C-74.4.$$

Multiplying by -10,

Equation (2) can be modified by substituting the value for P, which is 70.

$$F=-10\ C+744. \qquad (3)$$
$$F=2\ C-35.$$

Equation (3) has now been transformed into Equation (4). Since both Equations (3) and (4) have the same two unknowns, we can readily compute the values for each unknown.

$$F=-10\ C+744 \qquad (3)$$
$$F=2\ C+35 \qquad (4)$$

Multiplying (4) by 5, and adding,

$$\begin{aligned} F&=-10\ C+744.\\ 5\ F&=10\ C+350.\\ \hline 6\ F&=1094.\\ F&=182.3. \end{aligned}$$

Substituting in Equation (4),

$$F=2\ C+35.$$

the value for F, we obtain

$$\begin{aligned} 182.3&=2\ C+35.\\ -2\ C&=-182.3+35.\\ 2\ C&=182.3-35\\ 2\ C&=147.3\\ C&=73.65. \end{aligned}$$

The diet calculated for Mrs. R. is

Protein,	70 Grams
Carbohydrate,	73.7 Grams
Fat,	182.3 Grams

The caloric value of this diet is as follows:

Calories from Protein,	70×4.1= 284	Calories
Calories from Carbohydrate,	73.7×4.1= 302	Calories
Calories from Fat,	182.3×9.3=1695	Calories
	2281	Calories

Let us take another example. Mr. W. A. J. is a diabetic weighing 160 pounds (80 kilos). His carbohydrate tolerance is 40 grams. Let us make up a diet for him.

We are already given the information that P=80, and that G=40.

$$F=2\ C+P/2.$$
$$F=2\ C+40.$$
$$G=C+0.58\ F+0.10\ F \qquad (5)$$
$$40=C+46.4+0.10\ F.$$
$$-0.10\ F=C+46.4-40.$$
$$0.10\ F=C-6.4.$$

Multiplying by -0.10,

$$F=-10\ C+64 \qquad (6)$$

From Equation (5) and Equation (6) we can obtain the values for F. and C.

$$F=2\ C+40 \qquad (5)$$
$$F=-10C+64 \qquad (6)$$

Multiply (5) by (5),

Multiplying Equation (5) by 5,

$$\begin{aligned} 5\ F&=10\ C+400.\\ F&=-10\ C+64\\ \hline 6\ F&=336\\ F&=56. \end{aligned}$$

Substituting in Equation (5) the value for F, we obtain the value for C.

$$\begin{aligned} F&=2\ C+40.\\ 56&=2\ C+40.\\ -2\ C&=-56+40.\\ -2\ C&=-16\\ C&=8 \end{aligned}$$

From the calculations, the diet for Mr. W. A. J. is as follows:

Protein,	70 Grams.
Carbohydrate,	8 Grams.
Fat,	56 Grams.

The caloric value of this diet is calculated as follows:

Calories from Protein,	70×4.1=284.0	Calories
Calories from Carbohydrate,	8×4.1= 32.8	Calories
Calories from Fat,	56×9.3=520.8	Calories
	837.6	Calories

From the diets computed for the two diabetics mentioned, it is evident that Woodyatt's method supplies enough food for diabetics who have a fair carbohydrate tolerance. Those, however, with a low carbohydrate tolerance cannot be maintained on Woodyatt's dietary adjustment, for a low carbohydrate tolerance carries with it the necessity for making up the diet with a low fat content. The result is that the food allotted the patient does not carry sufficient calories for maintenance.

It has been suggested, however, that this disadvantage may be overcome either by the use of synthetic fat not ketogenic or by changing Shaffers(1) ketogenic-antiketogenic ratio so that 1 gram of glucose could take care of more than 1.5 grams of fatty acid. That a non-ketogenic fat can be prepared in the laboratory and can be utilized by the human being has been proven by Max Kahn. That Shaffer's ratio is too small has been proven by Marsh and Newburgh. Our next logical step, therefore, is to discuss the work of Kahn on the artificial fat, intarvin, and the work of Marsh and Newburgh with reference to the use of high fat diets in diabetes.

(To be continued).

A BROADER VIEW

Arthur H. Krueger, M. D.

A society of professional men and women should be so well balanced that each of its members has ample opportunity to develop symmetrically.

To advance symmetrically a physician must have a good scientific foundation, a high ideal in ethics and good business ability to obtain the financial means earned by his labors. Acquaintance with his fellow workers should progress, adopting the slogan, "Learn to know him and like him."

Great interest in all public questions should be evinced.

By improving themselves in all foregoing points, not only the physicians but the public will harvest lasting benefits.

The Physicians' Fellowship Club serves preeminently to give their members opportunity to eliminate causes for distrust, acrimony and ill-feeling.

PRELIMINARY REPORT OF THE HOSPITAL COMMITTEE OF THE NEBRASKA SECTION OF THE AMERICAN COLLEGE OF SURGEONS.

MAX EMMERT, M. D., F. A. C. S., OMAHA.

This committee was created by a resolution introduced and adopted at the annual meeting of the Nebraska Section at Lincoln in May, 1925. The Committee was appointed by Chairman Welch in a letter dated Oct. 24, 1925, and consists of the following members:

Dr. J. E. M. Thomson	Lincoln
Dr. E. G. Johnson	Grand Island
Dr. Geo. B. Dent	North Platte
Dr. A. A. Smith	Hastings
Dr. Chas. E. Slagle	Alliance
Dr. E. L. Brush	Norfolk
Dr. Max Emmert (chairman)	Omaha

In the organization of the committee and in the development of a modus operandi it was decided to send a questionnaire to each hospital in the state of ten or more beds, in order to gather statistical data which could be used by the American College of Surgeons whenever desired. This data to remain in the possession of each member of the committee so as to be available to the Hospital Inspector from the Chicago office when working in the state. In addition to the above plan the committee decided that whenever practical the individual member would inspect personally all hospitals of ten or more beds in his district and record his impression of each hospital inspected, which material was to be kept available for use of the home office.

The data herewith submitted is not complete for two reasons:

1. The short period of time for compilation.
2. The failure of many hospitals to appreciate the significance of the survey and their failure to return the questionnaire.

Resume from data of hospitals which reported.

District	No. Beds	No. Nurses	No. Internes	Standardized
Alliance, 3 responded	155	64	0	0
Grand Island, 10 responded	608	112	2	1
Lincoln, 13 responded	1859	294	4	2
Omaha, 20 responded	1827	691	54	7
Hastings, 7 responded	211	78	0	0
Norfolk, 8 responded	377	84	0	1
North Platte, 5 responded	86	6	0	0
Totals	5123	1329	60	11

Views of the individual members of the committee upon the hospital situation in the state of Nebraska.

Dr. E. G. Johnson, Grand Island: "The hospital situation in central Nebraska is excellent. The accessibility, patients' records, equipment, personnel of nurses, fireproof construction and attending profession of these hospitals are far above the average. My personal opinion is that the hospitals themselves are very much interested in and desire to be recognized by the American College of Surgeons in its standardization programme".

Dr. E. L. Brush, Norfolk: "The hospital situation in this district is not very favorable for standardization. Most of the hospitals in this district are private institutions with the exception of the Lutheran Hospital of Norfolk and this hospital does not lean favorably towards standardization, at least, at the present time. Although the hospitals are private institutions, most of the men in charge are anxious to live up to the standards of the American College of Surgeons as near as possible and all have expressed the desire to standardize. Consequently I feel that the College of Surgeons has done much towards raising the standards of the small hospitals".

Dr. Jas. E. Thomson, Lincoln: "Certain things appear striking to me. The first is the little enthusiasm that seems to be evidenced regarding the standardization and betterment of hospitals. I am in hope that this meeting which we will hold in February will show some developments that will aid in creating a more sincere interest on the part of the managers of these hospitals. With this in mind it might be proper to write directly to these various hospitals asking them to send representatives to this meeting, particularly the hospital conference, in order that a fuller realization of what the College is endeavoring to do for hospitals about the country may be appreciated."

Dr. Max Emmert, Omaha: "The hospital situation in Omaha and vicinity is satisfactory. Those hospitals which are standardized are increasing their efficiency by constantly improving their service to the patient and systematizing their routine. Several very good hospitals in Omaha are not standardized. Of these, three have applied for recognition. Two of those which have applied are largely dominated by men whose practices are generally thought to be not in accord with the standards of the College of Surgeons. Therefore, I would question the advisability of recognizing them until certain changes have been made.

"In the vicinity adjacent to Omaha the hospital requirements are well met by local hospitals. In Fremont one hospital of twenty-three beds is developing an organized staff and is much interested in the standardization programme".

Dr. A. A. Smith, Hastings: "It is my opinion that a special effort should be made for standardizing the Mary Lanning Memorial, St. Catherine's and the Lutheran, because it could be easily accomplished.

"I asked the superintendent of one of our leading hospitals to make a comparison for me showing what changes were necessary in his hospitals to become standardized and to operate upon a standardized basis. This will give an idea of the price paid for standardization and also impress upon us, as members of the College of Surgeons, our duty in supporting the standardized hospitals".

A COMPARISON

Subjects 1918-19	Class Hours 1918-19	 1925-26
Practical nursing	24	64
Ethics	15	12
Clinical pathology	20	15
Personal hygiene	14	10
Materia medica	24	30
Anatomy and physiology	20	84
Surgical technique	8	10
Gynecology	8	8
Obstetrics	24	22
Medical and contagious dis.	26	30
Massage	12	15
Dietetics	12	40
Anesthetics	8	8
Mouth hygiene and oral surg.	6	6
Nervous and mental diseases	10	20
Surgical emergency Orthopedic surgery	9	15
Eye, ear, nose and throat	10	10
Psychology	8	15
X-ray	3	3
Skin and venereal	8	12
Medico-legal	2	2
Hospital administration	3	3
Bandaging	6	10
	260	
Public health		5
Modern social problems		4
Emergency nursing and first aid		10
History of nursing		24
Pediatrics		20
Infectious diseases		20
Bacteriology		30
Chemistry		45
Elementary technique		6
Drugs and solutions		20
Hospital house keeping		3
Preliminary class instruction in theory and practice, 10 hours per week during the first three months		120
		801
25 hours Bible study		25
		826

Average hours floor duty during first year, 3 to 4.

Added records and record writing takes so much time that, with added class work also considered, it takes twice the number of nurses to give patients the same amount of care now.

Average cost of instruction, maintenance and care for nurses, approximately $1,000.00 per pupil per year.

75 bed hospital.

Number of workers then and now:

1916-17

Matron, assisted in office work and other matters by pupils, by the head nurse, and the surg. supervisor.

Matron.
Sup't nurses.
Surgical supervisor, the only graduate nurses then.
2 internes (Did all lab. work).
25 pupil nurses.
1 janitor-fireman.
1 cook.
4 to 5 general workers.

Educational requirements for admission to training school, 8th grade only.

1925-26

General sup't.
Registrar.
Bookkeeper.
Sup't nurses.
Full time teacher.
Surgical supervisor.
Night supervisor.
Obstetrical Nurse.
Graduate floor supervision.
Anesthetist.
Ass't anesthetist (On call).
Dietitian-matron.
Laboratory technician.
Ass't x-ray technician.
44 pupil nurses.
1 Cook.
1 Ass't cook.
3 helpers.
8 maids.
1 laundress.
1 floor man.
2 licensed engineers.
2 Internes.

Cost of operation has increased 65%. Cost to patient has increased on an average of 30%.

Number of patients cared for annually has doubled.

One of the phases of hospital activity, which requires earnest consideration, is the training school. The organization of nurses with the aid of their friends have, (a) by their increased standards for entrance into the hospital, (b) by their demands for what is practically a liberal college education during the course of training, and, (c) by their efforts to limit nursing to certain fixed hours of service, almost succeeded in removing the art of nursing from the category of professions and placing it in the ranks of unionized labor. This modernized trend not only places an unbearable financial burden upon the hospital but decreases the hours of service to the hospital by the nurse during the period of training. It is very questionable whether the present day graduate is actuated solely by motives of service to suffering humanity.

It is an open and debatable question whether the years of training should be reduced and whether more time should be spent in teaching the practical phases of caring for the sick and less time to teaching a smattering of science.

I think the matter may be focalized in the answer to the following question:

Do we desire to teach girls to care for sick patients or are we trying to make intellectual companions for our patients?

RESUME

The hospital situation in Nebraska, although in fairly good condition, offers a fruitful field for constructive work. This may be carried on by each member of the College in the following manner.

1. Setting an example by keeping our own patient records up to standard.

2. Insisting upon improved conditions in the hospitals in which we work.

3. Advising and assisting in the organization of staffs in all hospitals in our vicinity.

4. Advising and assisting the small hospitals to so organize their routine procedure as to produce the maximum of efficiency with their equipment.

5. For the members of the College to support by their patronage, those hospitals which are standardized.

MEDICAL EDUCATION AND THE COUNTRY DOCTOR IN NEBRASKA*

F. A. LONG, M. D., MADISON, NEBR.
Editor, The Nebraska State Medical Journal.

I date back to the time when it took but about forty weeks to make a doctor and there are people who are willing to admit that they made some pretty good ones in those days! Up to about 1885 the requirements for graduation in medicine were 2 courses of lectures in a recognized medical college and three years of study under a preceptor who was a practicing physician or surgeon. These courses of lectures were from 20 to 24 weeks each (a few thirty weeks).

I have always regretted my lack of medical college training and have always regretted that I did not have a premedical scientific education. I have suffered from this lack during all my professional career. I am, therefore, very much in favor of the more modern training given students in medical colleges and also the entrance requirements. It appears, however, that in our endeavors to standardize on a high plane during the past twenty years, that we have overdone things somewhat. This is generally recognized by educators and others. The difficulty seems to be to strike the proper equation. At the recent conference on Medical Legislation, Medical Education and Licensure in Chicago, this matter must have been pretty thoroughly discussed judging from reports received and no doubt the solution of the problem is not far in the future.

Professional men cannot be too highly educated, but we should not aim to educate *a race* of super-doctors. Those entering special lines must have the highest training possible and this should come as graduate work. Already a good many medical graduates desiring to enter special lines take from one to three years of graduate work after graduation from the medical college.

It is argued that the premedical curriculum could be modified and that some advanced laboratory work could be omitted without detriment to the embryo doctor in his future career and that by doing this the course could be shortened perhaps one year, and the solution of the problem is probably along this line.

Much has been said about the cost of a medical education and figures ranging from $10,000 to $15,000 have been quoted as the cost of a medical education. These figures are probably extreme in that they represent not alone the cost of medical education, but the additional cost of fraternity life, social engagements, ball games, the races, pugilistic exhibits, etc., none of which should properly be charged against medical education.

Having the viewpoint of a rustic, I may be allowed to make a comparison from rural life. The farmer of average means will outfit his son who aspires to be a farmer, by deeding to him at least part of the value of a farm, the amount varying from about $10,000, upward. To give the son an education that costs $10,000, is but giving a fair equivalent of what the farmer boy gets.

The general practice of medicine in the country is largely that of acute illnesses and emergencies which call for the highest grade of clinical observation and judgment, and leaves little time for laboratory refinement and technique.

The present medical college curriculum is thought to lack something to fit the average recent graduate as a general practitioner, because everything is worked out by laboratory methods. If I were dean of a medical school I would have a course of lectures during the senior year on the general practice of medicine. I would get several outstanding general practitioners from out in the state to give this series of lectures on the problems of the general practitioner in a rural community.

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*A talk given before the Omaha Professional Men's Club, March 22, 1926.

These problems are many and real.

Perhaps I'd better tell you a few of my outstanding experiences, to illustrate the point I am trying to make. It is said that all self-made men are egotists, and I think this is true; and I do not know of any class of men who have a better right to be elated for what they have done under tremendous handicaps, looks so very big to them. It is no particular credit to a young man to graduate in medicine or any other profession if his father has put up $10,000 or $15,000 to make it possible. For the young man, that is easy.

Forty to forty-five years ago, the then pioneer West was developing very rapidly and the poorly trained physician of those days, with all his handicaps was a God-send to the pioneer community for his training was much better than no training at all.

As in all occupations in early Nebraska, it was a case of "root hog or die'' in medicine. A lot of practical things had been pounded into our heads in college so that when called to the first case of instrumental delivery, after the woman had tried for 24 hours to deliver herself, I was able to introduce the forceps right side up. At a later day I saw a graduate of an Omaha medical college trying to introduce forceps with the blades directed downward.

When called to a case of fracture in the earlier years we made splints of any material at hand. I recall tearing a piece of siding from the house at one time to make a splint and at another time taking a fence board from which to shape a splint.

In the early days typhoid fever was very prevalent. Those were the days of the dug surface well. I took care of a family in which there were ten children. All developed the fever except the mother and the nursing babe. Asked what was the cause of the fever I told them that typhoid fever was a water-borne disease and that the trouble must be in his dug well. The husband replied that that could not be so. The well stood by the fence of a cattle feeding yard, was a dug well and was boarded over. During his several weeks' illness he had time to think and after his recovery, being a conscientious man, he thought he would see what there was to the doctor's theory of well contamination. They found rotten corn husks, rotten corn cobs, a dead rabbit, several dead rats and innumerable dead bugs in the well. Being an honest man he came to tell me that he was now a believer in my preaching. This man and his family remained my staunchest friends and supporters throughout a long life.

In those early years a good deal was said about typho-malarial fever, meaning thereby a fever that supposedly partook both of a malarial and a typhoid nature. One of the first papers I ever read before the Nebraska State Medical Society was entitled "On the Continued Fever of Rural Nebraska" in which I tried to show that the fever of rural Nebraska was a typhoid fever, pure and simple. Nowadays we hear nothing about typho-malarial fever in Nebraska.

In December 1892 I felt called upon to do an appendectomy 16 miles in the country. We sterilized earthenware milk crocks for basins and did the operation. That operation was fearfully and wonderfully done, but the patient, a 16-year-old girl, recovered and lived to bear ten children. I think this was the first appendectomy ever performed in north Nebraska outside of Omaha.

Some thirty years ago when there was very little known about extra-uterine pregnancy I was called early one morning to a lady who was suffering great agony. I relieved her pain and on investigation convinced myself that she had a ruptured extra-uterine pregnancy. Her condition became extremely bad in a few minutes. She became pulseless at the wrist and unconscious. Her husband, a rather testy Scotch-Irishman, said, "You have given her an overdose of morphine." I explained to him and he corrected himself saying he meant it had taken an unusual effect. He insisted that the trouble must be in her head. We had a consultant called, and worked over her for 8 hours before she began to revive, and the radial pulse to return. We then called an Omaha surgeon who operated the next morning and the lady recovered without an untoward symptom. From that date on those people were "for me"—I had made a hit. He paid the surgeon rather grudgingly thinking he had been overcharged, paid the consultant and then asked me to bring my bill. In those days the general practitioner's fees were rather modest. He received $1.00 a call, in town, $10.00 for confinements and miscarriages, etc. I felt at that time, and ever since, that that diagnosis was the smartest thing I ever did in my life, for very little was known about the condition except by men who were specializing. I told my wife, who is the right kind of a wife to have, energetic, encouraging, helpful, bright—that I had saved that woman's life by a prompt diagnosis and that if Dr. Blank could charge $500 for doing the operation, I was going to charge $100, for my first 24 hours service in the case, which included the diagnosis. She wondered if I dared do it; what he would say, etc. I presented the bill as stated. He gave me a check with the words "I consider that the most reasonable for the service of the 'hull' (whole) of them!" A year afterward he took his family to Ireland and when asked about their family doctor in Nebraska, he told them the nearest he could tell them was that he was like Dr. Weelum McClure, of the Bonnie Brier Bush!

A father brought his four year old boy to me with almost the entire scalp torn loose, a depressed fracture of the skull and unconscious. I called a confrere, shaved the patient's head, cleansed the wound, trephined the skull, elevated the depression, put about 35 stitches into the torn scalp, put a heavy gauze skull cap dressing on his head, endeavored to control the delirium by keeping the gauze dressings wet with cold boric acid solution and in about three days the boy rallied and got well and is now a young man living in Colorado.

The point I am trying to make is that the country practitioner must be resourceful and must rise to the occasion. I would not advise every practitioner of today to attempt the things I have just related, for it is not necessary—there are hospitals within fairly easy reach now; but there are plenty of other opportunities to exercise resourcefulness.

The community doctor's success depends largely on promptness, faithfulness, adaptibility and resourcefulness.

The general practice of medicine in a rural community has many compensations. It is hard work to be sure. One must be ready for duty any hour of the twenty-four—no eight hour day, time and half time for him. But what is life without work? I dare say that among this professional group there is not one that limits his work to 8 hours, or whose work is finished at the end of eight hours each day. Your stores are open from 9 a. m. to 5 or 6 p. m. Does anyone suppose that the owners or managers of these businesses are through with their work when the doors are locked in the evening? When the minister preaches two sermons on Sunday, the people think that is easy; when the surgeon does an operation that takes two hours of his time and charges $200, some people think he has a snap. But is that all there is to the ministry, to surgery? Do they not spend hours and days in preparation?

There are very few snaps in the world. The man who succeeds does so by hard work in whatever occupation or in whatever field of activity.

The lure of the small town—of Main Street if you please—is not an idle dream. The small town has much to recommend it. The freedom of action; the feeling that you are one of the people; that you know everybody and that everybody knows you and is interested in you and in your welfare, is worth something. The people are *real people.*

Take my own little city for an example: A county seat town of 2,000 people. During the years of its existence Madison has furnished a Member of the Republican National Committee; a United States Senator; a Member of the National House of Representatives; an Attorney General for Nebraska; two Judges of the District Court; and the present Commander of the Nebraska American Legion.

The graduates of our high school have made good in various endeavors. One was called to a very responsible position in London ten years ago; one is a chemist for the Dupont people at Wilmington; one is moving upward in official circles of the Union Pacific R. R.; one is a high salaried attorney for the Sinclair Oil Co.; one is an oil geologist and a man of mark; one a research botanist and another with the Carnegie Institution; one is chief of the Travelling Library Service for the State of Wisconsin and well known in library circles as an authority in library service.

Many small towns can duplicate the above.

A doctor in a small town must be a part of the community. He must take his part in community affairs, must take position on the board of education, on the town council, in the community club, when requisitioned to do so. He need not become a candidate for mayor at the first election after his arrival—indeed he need not become mayor at all; but in any community it is the duty of its citizens to take by turns as they are requisitioned, duties on the board of education, on the town council and in the community club. The doctor's education peculiarly fits him for service of this kind and in turn it gives him a breadth of view. While he must do his duty fearlessly, he must not be an extremist. Perhaps none of us realize how much our lives influence the community life.

The World War took several hundred Nebraska physicians into the service. All received some special training. When they returned, restless like all ex-service men, many of them, feeling that the special training received in the war fitted them for work in special lines, gravitated to the cities. Some have found places for themselves; others have returned to their former, or to other small communities. With few exceptions, those that have returned to the home communities, prepared to do the better service for which their training had fitted them, are better off today, for rural communities respond to higher class service as well as urban people.

This gravitation to the cities is thought to have created a scarcity of general practitioners in rural communities. I can only speak for Nebraska. Statistics show this to be true; but there is nothing to show that this condition is at all acute in this state. True some smaller places that at one time have had physicians do not now have any; but it will be found out on investigation that they are communities with a small trade territory, therefore, a small clientage for a community doctor; hence the community is served from a near-by town. The telephone, the good roads movement and the autos have made this possible within recent years. I recall that when a boy in a farming community in the Lehigh valley, we had a village doctor. The community and the village still exist, but for the past fifty years the medical service has come from a city a few miles further away. Economic conditions have brought about this readjustment.

In a financial way the country doctor may be said to fare well. Much, of course, depends on the personal equation of the doctor himself. Those who are business-like and systematic fare better than those who lack system and method. He may not get the larger fees paid in the larger cities, but his expenses are less. Up to the time of the great general depression through which we are passing I think it fair to say that 90% of the accounts made with the general practitioner were good. All farmers were good pay. A few unfortunates hang about the small towns whose business is unproductive, or, who, through bad personal habits, are unthrifty and, therefore, unable to pay for medical service.

Country practice in Nebraska, considered as a whole, is somewhat different from most every other state. Nebraska is a purely agricultural state. Nebraska, of all the states in the Union, is the only one without mineral resources whatever. All the states around us, Iowa, Missouri, Kansas, Colorado, Wyoming, South Dakota, have either coal, gas or oil; some have all three; we have neither. Lacking raw materials we may never expect to develop manufacturing centers of any considerable importance out in the state. Aside of the two metropolitan cities, Omaha and Lincoln, there is no place of over 13,000 people. Aside of the few places that are junction points or division points on railroads, every town is but a community trading center, and is, therefore, just what the farming community surrounding town makes it. We may not, therefore, ever expect to get large cities.

I look for a greater future for the country doctor. There is a growing tendency for two practitioners to associate themselves together in country practice; there are now quite a number of groups of from three to five medical men together in country towns. Hospitals have sprung up in smaller towns; others will spring up. There seems to be no real good reason why there should not be community hospital districts, just as there are community school districts or community drainage districts. Every town of say 2,000 people and the trade territory surrounding the town should have an emergency hospital to care for its sick people. This idea has claimed a good deal of my thought for some time; but I need not here dilate upon it any further.

The trend will be less toward the larger cities in the future. Every place of say 2,000 people can support a general surgeon; every such place will support an eye, ear, nose and throat surgeon. Many of the comparatively larger places in Nebraska, with no large cities, will support an internist and a child specialist.

In conclusion:

High standard of medical education will be maintained, but a modification of the existing curriculum that will eliminate one year between high school and the end of the medical course is impending.

More attention should be given to the teaching of the problems of bedside practice in rural communities.

The shortage of practitioners in rural communities in Nebraska is not acute.

There is a back-to-the-country trend of doctors in Nebraska.

Rural general practice has many compensations.

THE DOCTOR

In the name of thousands of unbroken homes in which midnight hand-to-hand fights with death have been fought and won; in the name of thousands of lives rescued from abnormality and made useful; in the name of unshed tears and forestalled pain and baffled death — I doff my hat today to The Doctor. May he never have use for his own medicine. May each moment of pain he has saved others, shine in the crown of his life like a brisk star. May the children to whom he has saved parents and the parents to whom he has saved children take time to acknowledge the doctor's worth. May his patients pay him his bill. And in the inevitable hour may a certain grim adversary recognize a noble foe and deal gently with the doctor.—W. J. C., in *Detroit News*.

CHOICE OF OPERATION FOR CANCER OF THE RECTUM

CHARLES J. DRUECK, M. D., CHICAGO

No branch of medicine has been so hampered and delayed by pessimism and hopelessness throughout the profession as rectal cancer. The treatment of cancer of the rectum may best be considered from ,three points of observation; each presenting the disease in a different clinical picture.

1. Treatment of the precancerous conditions.
2. Radical removal of the tumor (operative measures).
3. Palliative or non-operative treatment.

Treatment of Precancerous Conditions: We have as yet no definite knowledge as to the method of communication of cancer but we know that in many cases there exists what may be called a precancerous state when apparently benign growths are found. This condition is found not only in cancers about the rectum, but also malignant growths elsewhere, and may be diagnosed with certainty and the patient given assurance that radical operation at this stage is effective, easy and safe and promises immunity from recurring as opposed to certain death if the patient reaches us too late. Every patient complaining of local pains with or without an abnormal discharge should be carefully examined with the thought of possible cancer. Malignant growths at the anus or within the rectum should be removed at the earliest possible moment but where the growth has involved surrounding organs radical removal is impossible and tentative treatment to ameliorate suffering should be considered.

Surgical Measures: The only plan which offers any hope of cure of cancer at present is surgical removal, although often this is but temporary.

Don't rely on palliative measures, the first and most important treatment in every case of cancer of the rectum is immediate extirpation.

Early cancer is usually curable by radical operation. The early operation is the effective one. Do not perform less radical operations on favorable cases than you do on unfavorable ones. The chances for a permanent cure are proportionate to the extent of the first operation. Make wide dissections; incision into cancer tissue in the wound defeats the object of the operation and leads to certain local recurrences.

The operative mortality is high in all operations for the removal of cancer of the rectum. Usually the disease is so far advanced when the patient presents himself that extensive dissection is necessary, thus causing considerable shock. The general septic condition of the patient further reduces his chances of recovery.

The choice of operations is not by any means easy, and here as in all other conditions the surgeon must be guided by experience and judgment, as there are many factors to be taken into consideration besides the location of the growth.

Choice of Operation: It is a lamentable fact that only a small percentage of cases of rectal carcinoma are suitable for radical extirpation when first seen by the surgeon; probably 30 per cent is a good average.

Cripps (1) Summarizing 445 cases performed
Excision in 108 patients.
Colostomy in 151 patients.
Palliative treatment in 115 patients.

There are but two satisfactory radical operations.

1. Combined abdomino-perineal.
2. Colostomy with high perineal excision later.
3. Perineal excision.

The perineal operation should be restricted for epitheliomas limited to the anal region or low in the rectum. Perineal removal of cancer within the rectum often results in gangrene of the bowel above because the superior hemorrhoidal arteries are end arteries. In operations for rectal cancer it will sometimes be noted that when the rectovesical pouch is opened, it is not rare to find the rectosigmoid junction presenting and easily pulled down, while the rectum itself, and particularly its ampulla, remains fixed, held solidly by the superior hemorrhoidal arteries, which come down from the aorta almost in a straight line. Therefore, these vessels must be divided in order to bring the rectum down, and while this enables the bowel to be pulled out, gangrene is apt to follow. This complication is readily understood by a study of the vascular relations. In other portions of the bowel, the arterial supply is by a series of anastomosing arches, while in the terminal portion, the hemorrhoidal arteries descend without giving off any anastomoses. This arrangement is shown by a series of injections carried out by de Dietrichs under Hartman's direction. The former found: 1. Ligation of the inferior mesenteric had no effect on the circulation of the rectum, provided it was done between its origin and the last important collateral, which comes off two-fifths or three-fifths inch below the sacral promontory. 2. Ligation of the inferior mesenteric below this lowest collateral leads to almost complete suppression of the blood supply to the rectum and to the rectosigmoid junction. This suppression is all the more complete in that, during perineal amputation, the inferior portion of the bowel being isolated from its peripheral connections, the branches of the middle hemorrhoidal as well are severed. 3. Ligation of the superior hemorrhoidal, right and left, shuts off the circulation in the corresponding sides of the bowel. After ligating above the last anastomotic arch, it is important to tie both ends of the vessel.

The abdomino-perineal operation is the method of choice in those cases within the rectum as it permits free access and enables the surgeon to go well beyond the limits of the tumor mass, to include the regional nodes and also expose the arterial blood supply where the vessels may be ligated without danger of subsequent gangrene to the stump.

Pennington from a study of 997 necropsies on cancer of the rectum found that in about one-third (324 cases) the regional nodes were affected. They would be beyond reach, as a rule, by the perineal or sacral operations.

Males, and especially fat subjects, do not stand the abdomino-perineal operation as well as females and lean people.

In view of the fact that in earlier or removable stages of cancer, failure to completely eradicate the diseased tissue means inevitable recurrence sooner or later; and further of the fact that even removable cancer sometimes calls for very extensive dissections in order to prevent recurrence, the condition of the patient as well as his wishes or those of his relatives, must be taken into consideration.

CAUSES OF DEATH

1. Shock: This can be largely combated bv giving a continuous submammary infusion of saline during the operation.

2. Peritonitis: A low form of peritonitis appears on the 5th or 6th day and death ensues two or three days later. It is due to soiling of the peritoneal cavity at the moment when the bowel is divided and its ends sutured. (Faulty technic).

3. Intestinal Obstruction: This is generally due to one or more coils becoming fixed by plastic adhesions to the line of suture restoring the pelvic floor and subsequently being acutely angulated, or to a coil becoming strangulated around the colon at the back of the colostomy wound. This occurs a few days after the operation and the patient is rarely in a condition to successfully withstand the shock of another laparatomy even if the diagnosis be made in time.

CONTRAINDICATIONS OF RADICAL OPERATION

1. Recognizable metastasis.
2. Local invasion of the bladder with the formation of recto-vesical fistula.
3. Fixation of the growth to the prostate or to the sacrum.

Inoperability is usually due to extension to the genito-urinary organs. If the disease has extended to the mucosa of the bladder, removal is futile.

Preparation of the Patient: Patients presenting themselves with cancer of the lower bowel are always suffering with toxemia, due to the prolonged partial intestinal obstruction, with necrosis, ulceration and its associated bacterial infection of the growth. This should be relieved before the patient appears for operation. In all cases in which there is marked stenosis of the bowel a preliminary hypogastric colostomy should be performed at least two weeks before the operation. If there be no abdominal distention and if the lumen of the bowel be not much encroached upon the colon should be thoroughly emptied of its contents by the aid of enemas and mild purgation.

In spite of very careful antiseptic preparation of the anal region so many fatalities occur from infection and giving away of the sutures because of the flowing of the intestinal contents over the wound that I always make an artificial abdominal anus as the first step. Whether this shall be a temporary or permanent abdominal anus depends upon the findings in the case.

One of the many advantages of colostomy as preliminary to excision of the cancer is the opportunity of examining thoroughly the bladder, urethra, prostate, uterus and pelvis to determine if the disease has invaded structures other than the rectum.

Early colostomy in inoperable cases is as vital to the patient as early operation in the operable cases. It is a great injustice to put off this operation until the patient is moribund. If colostomy is indicated it certainly should be performed before the individual has become so weakened by the disease that the operation will be of no benefit.

Sometimes adhesive bands from the rectum are only inflammatory and if found to be so, extirpation of the growth offers hope of success. Involvement of the vaginal wall, bladder or prostate betokens metastasis and is a serious complication.

There are cases that primarily seem inoperable but after colostomy and drainage we find they were immovable not because the carcinoma had invaded the surrounding tissue, but because it had carried with it a form of infection, that had immobilized the carcinoma. In these cases there are no metastases, although there might be lymph nodes which were no doubt the cause of the inflammatory condition and it is possible many times to distinguish these lymph nodes from those that gradually became carcinomatous. If there are no metastases either farther up in the intestine or in the liver, which can be examined, if the incision is made sufficiently large and if at the time of operation these lymph nodes are not carcinomatous, but are in fact inflammatory, the effect of the colostomy will be that the rectum again becomes movable; in other words, the absence of the passage of infectious material over the carcinoma eliminates the continuous and repeated infection and because of that, inflammatory conditions subside and the carcinoma again becomes movable, and it can be removed, and a certain number of these patients will remain well.

Patients very often insist on knowing beforehand whether they will be left with a hole in their side or whether it will be possible to restore the anus to its original site.

There is a popular idea that a colostomy renders the individual intolerable to himself and to others, and that it is better to die of the cancer. This is not so. The colostomy is not ideal, of course, but it is far from being intolerable.

Colostomy should be performed early because otherwise:

1. The patient will get progressively weaker as time goes on, and he limits his diet and he will be less able to withstand the shock of an abdominal operation.

2. If obstruction has supervened there will be hypertrophy and dilatation of the proximal bowel and the operation be rendered technically more difficult.

3. Deflection of the fecal stream through the colostomy instead of over the abraded ulcer lessens the irritation and, therefore, retards the growth of the cancer.

4. The patient is relieved of chronic intestinal stasis.

Hypogastric colostomy has several advantages over the inguinal type. The opening is in the center of the abdomen in a position where the patient can attend to it with the greatest ease and comfort, and the cup remains in position whatever attitude the patient may adopt, whereas in the inguinal colostomy the cup is apt to ride up on the anterior superior iliac spine when the patient sits down and thus allows an escape of fecal matter.

The rectus abdominus develops in the course of time a certain degree of sphincteric power, which the muscles in the iliac fossa do not. The patient's ability to resist infection is a large factor in prolonging his life. If the digestive functions remain good his physical strength is conserved and the constitutional invasion of the disease retarded. Highly nutritious, absorbable foods, such as eggs, egg albumen, meat extracts, milk, bread and well cooked cereals are indicated, whereas, sweets, uncooked starches, fibrous vegetables and all such foods that leave much intestinal refuse should be avoided. Of course, the patient's taste will vary the diet list. The absolute milk diet is not so satisfactory as when meat, broths and breads are allowed. Sufficient laxative should be given to provoke two or three loose evacuations a day.

Irrigation: During the preparatory treatment the bowel should be thoroughly cleansed, twice each day the rectum should be irrigated with one-half strength saturated solution of boric acid or 1 to 5000 permanganate of potash solution to remove hard, lumpy, putrifying fecal masses and also relieve diarrhea or other discharges. The solution should run in slowly so that it will pass up above the disease and thus wash out mucus, pus and fecal matter which may have accumulated above or below the tumor. Under this treatment for two weeks, sepsis is eliminated and the patient's physical condition much improved and he is better prepared to withstand the shock of operation.

If the disease is limited to the anal epithelium it is not necessary to remove the rectal ampulla or the recto-rectal glands as the lymphatic drainage of the anal canal is downward across the perineum and into the inguinal glands. Here a perineal amputation is suggested.

FAITH IN THE PHYSICIAN AN IMPORTANT ELEMENT IN ALL TREATMENT

The good physician of a former generation knew his patients and was never too busy to lend a helping hand in any matter relating to their physical and mental welfare. He was not only their medical adviser further declares Mathias Nicoll, N. Y. State Jour. of Medicine, but, next to the minister of God, their counsellor and guide. His cures were often seemingly miraculous, for the reason that he inspired faith in those who sought his help. And it is that faith, born of keen personal interest, which is so largely denied the modern physician.

HYDATID CYST OF INFERIOR BORDER OF LIVER

N. H. RASMUSSEN, M. D., AND TED. E. RIDDELL, M. D., SCOTTSBLUFF, NEBR.

As far as the literature covering this case is concerned, it is well brought out that it is a rare pathological condition in this particular locality; more common in Iceland, Britain, and Siberia. Modern methods of civilization and of living have even lowered the tendency of echinococcus infection, as people in the present age do not live in such close contact with the lower animals, as was practiced 50 years ago. This case is interesting because of the rarity of the disease in this country.

Case Report: Russian man; born in Siberia, 1884, came to United States in 1902, age 42, married, 3 children, living and well, and wife, living and well. Negative venereal history. Complaint—

(1) Pain in the upper part of the abdomen.
(2) Inability to breath easily.
(3) Loss of appetite.
(4) Mass in the abdomen.
(5) Loss of weight.

Onset—About 8 years ago he first noticed a small mass in the upper right quadrant of his abdomen. He discovered this accidentally, while feeling of a rash he had on the abdominal wall. It has progressed in size, but has never bothered him much until 3 months ago, when the sensation of fullness, caused him to lose his appetite, to lose weight, and inhibited normal respiratory action.

In the interviewing time he had visited various physicians who had told him various things about the mass. On March 5, 1926, his abdomen became more tense than ever, his pain became more severe, and the inhibition of his respiration was sufficient to cause a marked increase in respiratory rate and in pulse rate. It was almost impossible for him to take nourishment at this date.

Physical Examination: General inspection showed, man of stated age, emaciated, laboring to get his breath, apparently in pain, irregular contour of abdomen. Eyes, ears and nose showed no demonstratable pathology. Throat and mouth showed some pathology of the teeth and slightly infected tonsils. Lungs and heart, no demonstratable pathology.

Abdomen: The contour, irregular, the left upper quadrant revealing a noticeable mass extending down to the umbilicus which, upon palpation, was found to be irregular, movable with the excursions of the diaphram, cystic and with a slight pulsation. It was movable within the abdomen for about one inch in all directions. No glands were palpable anywhere. Reflexes all active.

Genito-urinary tract, negative x-ray, chest, showed a bulging of the diaphram left side. X-ray, stomach, showed the mass to be extra gastric, and superior to the stomach. X-ray barium enema, showed the transverse colon below the mass, and the mass itself not connected with the colon. Stool examinations were negative.

Blood examination revealed, negative Wassermann, red blood cells, 4,640,000; white cells, 8,400; polymorphs, 69; small lymphs, 26; large lymphs, 5; hemoglobin, 78.

Urine-reaction, acid, color, straw, albumen, trace, sugar, none. Acetone, negative; microscopical, negative.

Blood pressure, 135-90. Temperature normal, pulse 90, respiration 28.

A diagnosis of either a cyst of the pancreas, or of the liver was made, and it was decided to open the abdomen. The man was placed on a high carbohydrate diet for 24 hours, glucose and sodium bicarbonate solution was pushed, and the following day he was operated.

A high left rectus incision was made, and when the abdomen was open a large irregular cystic tumor presented iteslf in the opening. This tumor was lying above and over the lesser curvature of the stomach. A trocar was inserted and a few small cysts aspirated. This settled the diagnosis of an echinococcus cyst, so the opening in the cyst wall was made larger and the contents evacuated. This consisted of a large size wash basin full of the fluid and cysts, which ranged from the size of pin heads to ones of 1½ inches in diameter. The cystic cavity was then washed with saline solution and afterward swabbed with a 7% tincture of iodine. The cyst wall was then brought into the abdominal closure and sutured there. The cyst cavity packed with gauze, and a large cigarette drain and a rubber drain inserted.

This man's convalescence was uneventful. He was still draining slightly on March 19th, but the incision with the exception of the drainage point is well healed. Mr. L. is today at home on his farm feeding cattle, apparently greatly relieved. He has gained 25 pounds since the operation, his appetite is good and in every other respect he seems quite normal.

Comment: As far as the relationship of his association with dogs in Siberia is concerned, he can only recall some 25 years ago being bitten by a large dog. He states that he never drove a dog team, nor came in direct contact with dogs otherwise than the bite he received 25 years ago. Whether the ova could have been transmitted through a bite by the dog inflicted into the soft parts of a man's leg, and thus gain entrance to the gastro-intestinal tract, subsequently lodging in the liver, I do not know, as I could find no such reported incidence in the literature. The man was dismissed from the hospital 21 days after his operation, having been informed of the possibility of a recurrence of his trouble.

BETTER HEALTH FOR THE COUNTRYSIDE

"The idea that rural life is inherently wholesome and healthful has all the vitality of a popular legend. The crystal waters of the old family well, the gymnasium apparatus of plow and hoe and saw, the fresh food from field, garden, and dairy, the constant outdoor life, the mental serenity which comes from contact with nature have been so lyrically extolled by orators, chiefly urban, that it is hard to convince the man in the street that the farmer and his family are not healthier than city folk.

"Yet there are many facts which point in quite the opposite direction . . . New light has recently been thrown on this question by the examination of 3,478 male students in one of the large state universities of the Middle West. The results are distinctly favorable to the large cities of over 50,000 population as compared with small cities, countryside, and villages. The students from the large cities show the lowest number of physical defects. 'It is a well-known fact,' says a United States health official, 'that the natural advantages which the rural districts possess are more than offset by the better health protection afforded the city dweller.'

"To hasten the extension of these safeguards to the small town, village, and countryside is one of the aims of the International Health Board. Success in the control of hookworm disease has led in the Southern States to the creation of official county health organizations, and in other states and a few foreign countries similar services have been assisted. These county units vary in size, scope, and cost. The usual staff includes a full-time health officer, a sanitary inspector or officer, a public health nurse, and a clerk. The annual cost for such an organization is $10,000. This is paid chiefly by the county but in part by the state. In many instances the International Health Board makes a contribution while the plan is being tested. The Board's share varies with the conditions. Sometimes 10 per cent of the total cost will be enough to get a project under way. In other cases aid up to 25 per cent may be required. In rare instances it may seem wise to give even more. The duration of the Board's participation likewise follows no rigid rule. At times three years will suffice. Ordinarily by the end of five years the Board has withdrawn. In special cases aid for a longer period may seem justified.

"In 1924 the Board contributed directly to 83 county budgets in 22 states of the United States, four counties in the State of Sao Paulo, and five demonstrations in the state of Minas Geraes, in Brazil, to rural health work in the Province of New Brunswick, Canada, and to a health service of the county unit type in Czechoslovakia and the Department of Health in southern France."

—Selected.

THE INTRACUTANEOUS SALT SOLUTION TEST

A simple method for determining the efficiency of the circulation in the extremities in cases of arterial disease associated with pain, vasomotor disturbances and even actual gangrene is described by Milton B. Cohen, Cleveland (Journal A. M. A., May 23, 1925). In 1923, McClure and Aldrich determined that if 0.2 c. c. of an 0.8 per cent aqueous solution of sodium chlorid is injected intracutaneously in a normal child, a circumscribed snow-white elevation, in which the pores are accentuated, is immediately produced at the point of the injection. Although the extreme whiteness disappears in from one-half to one minute, the elevation persists for a considerable time. In normal children, the time required for complete disappearance of the wheal as determined by palpation was fifty minutes or more. In children with edema, there was a much more rapid disappearance of the wheal, the time being in some instances a minute or less. They concluded that this test may be of value; first, in the detection of disturbed water balance in the tissue, and, secondly, as a means of following the progress of a case in which the presence of such a disturbance has been established. In 1924, the same observers reported a study of this test in sixteen cases in children of so-called "nephritis" with generalized edema. They noted that the disappearance time was shorter, the greater the edema, and vice versa, and that a reduction in the disappearance time preceded other clinical evidence of the edema by several days, and, conversely, that a lengthening of the disappearance time preceded a reduction in the edema. They noted a more rapid disappearance in the leg than in the arm, and attributed this to circulatory disturbances in the leg. They concluded that the increased absorption of salt solution affinity of the tissues for water. Cohen believed that if these reports are correct, intradermally injected salt solution should disappear much more rapidly in the legs than in the abdomen or arms in cases of cardiac edema. To determine the accuracy of the salt solution test, experiments were performed on rabbits. These experiments seemed to show that a marked disturbance of tissue affinity for water could be demonstrated, by means of this test, to follow disturbances in the minute volume of flow of arterial blood through an extremity. In the case of healthy persons, not less than thirty minutes at the base of the great toe and sixty minutes at the ankle is considered normal. Tests were also performed on patients with arterial disease in the extremities. It is apparent that intradermally injected salt solution disappears more rapidly from areas with deficient circulation than from those areas in which the circulation is normal, in a manner comparable to the difference observed in different parts of the body in cases of cardiac disease. It is concluded that in circulatory disturbances associated with vascular disease, this test may afford a simple method of determining the level of adequate tissue oxygenation.

The optimist is the fellow who takes the cold water thrown upon his proposition, heats it with enthusiasm, makes steam and pushes ahead.—*Los Angeles Times.*

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STANDARDIZE FEES

We have standardized medical colleges, we are standardizing hospitals, by the Principles of Ethics of the American Medical Association we are endeavoring to standardize the relations of physicians to one another and to their patients, through the same body and the American College of Surgeons and the American College of Physicians we are standardizing surgeons and physicians and are endeavoring to prevent fee splitting; but we have never attempted to standardize fees—the one thing that is at the root of our greatest evil.

Why not standardize fees? Some say it can't be done. Why can it not be done? With a whole hearted desire to do, almost anything can be done—has been done. There is a lot of can't about all this business that should be beneath the dignity of a great profession and much of it comes from men who like to pose in the limelight as the great and holy in medicine and surgery.

Who can doubt that the enormous fees charged by some men in the profession are at the root of the fee-splitting evil? When a surgeon, for instance, charges so much, for his service that there is nothing or almost nothing, left, for the local or family physician, what must the local man's reaction be? When a surgeon poses in sanctimonious dignity as a non-fee splitter and charges "all the traffic will bear," in what respect does he differ in morals from the one who charges an exhorbitant fee and divides it with the local man? The laity believes that all surgeons split fees. When the non fee-splitting surgeon charges an excessive fee, the local or family physician is under suspicion of having shared that fee. In his strikingly original manner Dr. A. E. Hertzler of Kansas City, before the Surgical Club of Omaha, several years ago, advocated modest surgical fees as the remedy against fee splitting temptations.

It is not uncommon to hear of a surgeon, who after doing what amounts to a life-saving operation, literally holding his breath, and making an extravagant charge behind a cloak of assumed superiority saying—"I saved his life." He, who performs an operation that saves the patient's life is but doing his duty; nothing more. He is not entitled to as much credit as the schoolboy who rescues his playmate from drowning: The surgeon risks nothing by doing the operation and expects his reward in cash, while the schoolboy risks his own life in his heroic act, without thought of reward.

Attempts are sometimes made to justify large fees on the theory that surgeons give service to the needy poor for nothing, which is true; but surgeons are not the only ones, who, cheerfully or grudgingly, give service to the poor. All medical men, surgeons, internists and general practitioners do that in liberal measure.

The inequality of charges for certain kinds of surgical work in adjacent localities should be a matter for some concern. For instance, the writer knows that within a hundred miles of his abode the charge for the average appendectomy varies from $100, $150, to $175. Other operations in the same proportion. Why this difference which is manifestly unjust to nearby coworkers and to patients? There should be certain well recognized standards for fees.

It has been current rumor for years that a well known clinic bases the fee in every case on a commercial rating obtained through an agency like Dunn's or Bradstreet's from the local banker. This method has much—one may say, everything—to commend it.

It seems certain that no great advance has been made in the endeavor to prevent fee splitting and it seems equally certain that we have not reached the source of the evil.

The American College of Surgeons and Organized Medicine under whatever names could do no greater thing to benefit the medical profession and the people whom they serve than to standardize fees.

THE ANNUAL MEETING AT OMAHA

By the time this article is before you the meeting will only be a few days in the future. The different committees in charge of program and arrangements have planned to make this the best of all the meetings ever held and judging from the tentative program which appears on another page, the writer believes that they have much to justify their claims. You will notice that our two guests Dr. Alvarez of Rochester and Dr. Jones of Boston are two nationally known men. The program committee has also arranged for several symposiums which undoubtedly will be of much value to everyone who hears them. Many other individual papers of a high quality are listed, and altogether the scientific part of the meeting promises to be excellent.

In addition to this the Arrangements Committee has prepared a splendid series of entertainments which will add much to the fun and good feeling at the meeting.

Finally, everybody should have his wife with him as there are to be several important meetings of the Women's Auxiliary. Therefore, let everyone get behind this meeting and boost for it. Come yourself and bring someone with you. Make this the biggest meeting in our history.

R. B. Adams, Sec.-Treas.

SCARLET FEVER

One of the most disheartening features in our routine work as physicians is the realization that certain diseases must run their natural course. The program of watchful waiting is not always a happy one—this has been especially true of scarlet fever. We have been compelled to rely almost entirely on general therapeutic measures and have been unable to accomplish much in the way of limiting the disease or to do anything to combat the infection which existed.

Scarlet fever has always been a most treacherous disease. It may be ever so mild in one individual, or be extremely severe in another exposed person.

Our attitude toward scarlet fever is rapidly changing. We are no longer powerless to combat the infection. How really wonderful it is to be able to tell the anxious mother that we are able at last to do something to overcome this dread disease. All credit is due the Doctors Dick in definitely proving that the cause is the streptococcus hemolyticus. Some time ago there was organized in Chicago, a Scarlet Fever Commission. This Commission may be likened to the Insulin Commission organized at the time Insulin was first placed on the market. All scarlet fever serums submitted by manufacturers are tested by the Commission for their potency, according to standards which they have adopted. Serums which they consider of sufficient strength for use are licensed by the Commission and the manufacturer can so state in his literature. To my knowledge but two nationally known manufacturers have as yet been so licensed by them.

An axiom insisted upon by all the writers on the subject and notably so by the Doctors Dick is that the serum is almost without value late in the disease. If good results are to be obtained it must be administered early, as soon as the diagnosis is made. With the early injection of the serum the complications are of less severity or do not occur, the fever does not reach as high a point as formerly, the length of time in bed is shortened, and in fact the severity of the disease is in every way lessened. All this can be accomplished only by early serum injection. In severe cases more than one early injection may be necessary. For prophylaxis one-half the therapeutic dose should be given. Every case of scarlet fever should receive at least one therapeutic dose early in the disease. Those exposed should receive a prophylactic dose. If one wishes to determine the susceptibility of the individual to scarlet fever, the Dick test can be given.

And so with the sting taken out of scarlet fever the physician has something of definite value added to his equipment, in his battle with the disease.

—Floyd Clarke.

PRIMARY VASCULAR NEPHRITIS, OR RENAL PERIARTERITIS NODOSA

Periarteritis Nodosa is of such rarity, only seventy cases having been recorded in literature, that the recognition of the disease antemortem is exceptional. Clinically the disease may be recognized by the following clinical picture, according to J. J. Keegan, Omaha, (*Arch. Int. Med., 1925, 36,189*). There is an acute or gradual onset of obscure sepsis with emaciation, weakness, prostration, fast pulse, marked leukocytosis and frequently intermittent abdominal pain. The arteries most frequently involved are the coronary and the smaller vessels of the kidney. An affected artery shows well-marked nodules with frequent small aneurysms or thrombotic obstruction and infarction. In addition to the interest aroused by the very full case report of an unusual disease, particularly of the moment in the author's study, is the fact that the right kidney was removed at operation some weeks prior to the death of the patient and a wonderful opportunity was presented to contrast the early and late pathologic picture of the condition, together with the effect the disorder had upon the kidney itself. The acute lesions of the first kidney were found to be changed in the second into early arteriosclerosis. The intima was greatly thickened by young white fibrous tissue, leading to the anemia of the cortex, with atrophy, fibrosis and infarction. The cortex was narrowed and the tubules markedly atrophied with a varying degree of replacement interstitial fibrosis. When the patient was first seen there was but scanty evidence of renal insufficiency. Subsequently cardiac decompensation, decreased urinary output, nitrogen retention and a terminal uremia developed, undoubtedly the result of the rapid arterial obliteration. The pathology in this case naturally suggests to the author the possibility of a certain number of cases of chronic vascular nephritis being caused by a mild nonfatal attack of renal periarteritis nodosa. The term, chronic vascular nephritis, ordinarily is applied to the arteriosclerotic kidney of the aged, a condition characterized by the extension of the sclerosis of the aorta and large vessels in the renal artery, by an absence of the clinical symptoms of kidney disease and by a cardio-vascular death. The combination form of Volhard and Fahr, while primarily vascular in origin, is characterized by extensive glomerular change and the development of the signs of renal insufficiency, often ending in uremia, while cardiac compensation is adequate. If the author's conception of the origin of the vascular changes in an acute arteritis holds true it would fully explain the difficulty of the experimental reproduction of the glomerular type of vascular nephritis, because the organism causing periarteritis nodosa is extremely difficult to isolate, and probably is highly adopted to the human environment.—American Journal, Medical Sciences. Nov., 1925.

INTRACRANIAL COMPLICATIONS FOLLOWING MASTOIDITIS

Dr. John B. Potts, Omaha, (*Trans. Am. L. R. and O. Society, 1925*) says, "Mastoids and their complications are an ever present source of interest to the otologist. The involvement of the mastoid in so-called purulent otitis media is much more frequent than the commonly accepted idea of the profession would indicate. Among many there is apparently an idea that the middle ear and the mastoid are separated by some barrier. This is very erroneous as no such obstruction exists and any infection can pass freely from the Eustachian canal through the middle ear and antrum to the mastoid cells. I am indebted to Dr. C. W. M. Poynter, Professor of Anatomy of the University of Nebraska College of Medicine for the following:

About the seventh month of intrauterine life two masses of areolar tissue appear in the region of the future tympanum. The upper of these is the anlage of the upper portion of the tympanum, the attic and the antrum. Spaces develop in the areolar mass which fill with fluid and these spaces become more and more confluent till about the time of birth, when the fluid is absorbed and a cavity is formed. The cavity, then, at the time of birth is the tympanum, the attic and antrum, all lined with a continuous mucous membrane.

Thrombosis of the lateral sinus is the most common serious complication of acute mastoiditis. Some of the most important signs of sinus thrombosis are:

a. Temperature of 104 to 105 followed by a sudden drop to nearly normal, repeated every 12 to 24 hours.

b. High W. B. C. with high perceptage of polymorphnuclears.

c. Deceptively good appearance of the patient with little complaint.

d. Temporal or occipital headache.

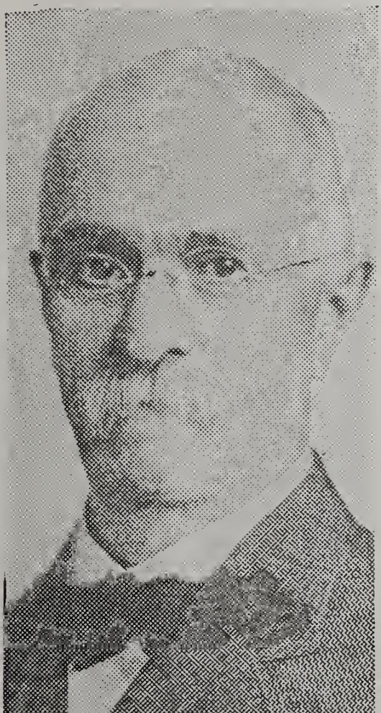
e. Localized symptoms such as stiffness of the neck, tenderness below the tip of the mastoid, etc., are frequently absent.

If thrombosis is suspected a direct investigation of the sinus is indicated and should be repeated every one or two days until a definite diagnosis is established.

DR. A. B. SOMERS: FIFTY-FOUR YEARS IN PRACTICE

Lay and professional people of all grades are willing and anxious to honor the physician who has given the best there was in him to suffering humanity for half a century, or longer. The subject of this sketch has been in active practice for fifty-four years.

Dr. A. B. Somers, Omaha, was born in 1847, was brought up on a dairy farm in northern Vermont, and from the age of fourteen, on account of war conditions, he did a man's work on the farm. His early education, therefore, was very meagre, a handicap from which he insists he suffered all his life.



At twenty-one he began to study medicine, took one course in the University of Vermont and two courses in the College of Physicians and Surgeons, New York City, and was graduated in the spring of 1872.

From time of graduation to the fall of 1887 he practiced in a small town in Vermont. He located in Omaha in December 1887. Since then he has been at least fairly active. He was health commissioner and city physician of Omaha, 1892-93; member, State Board of Health of Nebraska, 4 years; was surgeon and physician for the American Smelting and Refining Company for thirty years; was a charter member and is an ex-president of the Missouri Valley Medical Society; has been a member of the Nebraska State Medical Association since 1889; was a consulting surgeon of the Union Pacific at one time and was delegated to accompany President E. H. Harriman, suffering from appendicitis, to New York on a special train; from 1896 to 1900 he taught Internal Medicine in Creighton University College of Medicine; was professor of Obstetrics in the Omaha Medical College and its successor, the Nebraska University College of Medicine, 18 years, and did some special postgraduate work in New York before assuming the duties of the latter position. He still has office hours and makes some calls.

Dr. Somers believes that personality is the most powerful asset in the healing of sick people and is on the whole a greater curative agency than drugs.

He is a member of the Congregational Church and teaches a Bible class. His special hobby is ancient history.

EDITORIAL PARAGRAPHS

Tetraiodophenophthalein of sodium is used to visualize the gallbladder. As well learn to spell and pronounce the term now.

New ads in the Journal are: Seiler Surgical Co., Omaha; Kansas City Clinical Society; Union Loan and Saving Association, Lincoln.

Dr. Daniel T. Quigley, Omaha surgeon and radium expert, is about to have published by a Philadelphia publishing house a work on cancer.

In his life of Abraham Lincoln, Carl Sandberg says that Mr. Lincoln personally roped the trunks the night before the presidential party left Springfield for Washington.

In the list of approved laboratories of clinical pathology as given in the *Journal A. M. A. April* 3, 1926, are Dr. M. G. Wohl's Laboratory of Clinical Pathology and Dr. E. T. Manning's Nebraska Laboratory of Clinical Pathology. Several adjoining states have no approved laboratories.

It is announced in the April *Hygeia* that an index and title page for the last volume has been prepared and will be sent to each subscriber on request. Wonderful idea! Why not raise the subscription price to a figure *Hygeia* can afford to furnish an index without asking for it, like other publications do?

Harrison in *Quarterly Journal of Medicine,* London, (*J. A. M. A., March 27, 1926,*) says, "As a result of observations lasting from eleven to eighteen months on five selected cases of diabetes mellitus, no evidence was obtained of even a partial remission of the disease." All cases required the same amount of insulin throughout the period of observation.

The program for the annual meeting May 11-13 is a very superior one. The writer has attended a good many annual meetings and has taken a deep interest in the programs as printed and as worked out on the floor. This program promises to be of a very high order. Of the 36 numbers on the program, 10 are from out in the state as distinguished from Omaha and Lincoln.

Up to the first day of April, 1,000 members—in round numbers—had paid their 1926 dues to the Nebraska State Medical Association. It begins to look now as if the total membership by annual meeting time would exceed all previous records. Where are the prophets who last year said the raising of dues to $8.00 would kill the association?

A press item from Moscow, is to the effect that the Commission of Health before the All-Russian Congress of County Doctors stated that the latest statistics showed an average of one physician in rural Russia to every 20,421 inhabitants. Many regions exist in which the number of potential patients is much higher; one, for instance, was cited with one medical man to 51,000 people. Russian doctors also gravitate to the cities.

Few of us know what a large and efficient medical organization the United Fruit company has in connection with the production and shipment of tropical fruits. It has provided hospitals and facilities for treatment of 70,000 employees and dependents. It has put under sanitation an area ten times as large as the Canal Zone.

The problem of life in the Tropics is almost solely a medical one.

A survey of the hospitals of Nebraska made by the American Medical Association and published in the *Journal A. M. A. April 3, 1926,* indicates that there are 122 hospitals of which 96 are for community use, the balance for custodial care. The total bed capacity of the 96 hospitals is 4,449, the average beds in use 2,666, percentage of beds in use 59. Hospitals approved for interneships are St. Elizabeth's Hospital, Lincoln, University Hospital, Omaha, and St. Joseph's Hospital, Omaha.

Three medical publicity articles from the El Paso County (Tex.) Medical society have been received by this Journal. They are wonderfully well prepared and are attractive from a mechanical standpoint. They are entitled "What the Physician has Done for Humanity,'' "Disease and Its Prevention" and "What Does Your Physician Know?" An accompanying letter states that the publicity campaign is handled through a competent advertising man. This sort of a campaign of education must eventually bring results.

Nebraska has a publicity committee, but—

MEETING OF THE NEBRASKA ASSOCIATION OF MEDICAL WOMEN

Meeting will be held in Omaha, Tuesday evening, May 11th, at the Athletic Club.

Program

Dinner at 6:15.

Dinner Talk: Medical Missions in China.................................... Dr. Lydia L. Schaum

1. Etiology and Diagnosis of Diabetes Mellitus.............................. Dr. Emelia H. Brandt
   Discussion.................. Dr. Ruth A. Warner
2. Diabetes Mellitus as a Factor in Ophthalmology .... Dr. Nora M. Fairchild
   Discussion........... Dr. Elizabeth Moyer-Swab
3. Treatment and Prognosis of Diabetes Mellitus .... Dr. May L. Flanagan
   Discussion............. Dr. Harriet S. Hamilton, Council Bluffs, Iowa

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UNITED STATES PUBLIC HEALTH SERVICE

Notice of Examination for Entrance Into the Regular Corps of the United States Public Health Service.

Announcement has been made by Surgeon General Cumming, that on May 3, 1926, the United States Public Health Service will conduct examinations of candidates for entrance into the Regular Corps of the U. S. Public Health Service. These examinations will be held at Washington, D. C.; Chicago, Illinois; New Orleans, Louisiana; and San Francisco, California.

Applicants must pass satisfactorily, oral, written, and clinical tests before a board of medical officers and must be examined physically. They must have been graduated in medicine from some reputable medical college, have had one year's hospital experience or two years' professional practice, and must be not less than twenty-three nor more than thirty-two years of age.

Candidates who successfully pass the requirements will be recommended for appointment by the President, with the advice and consent of the Senate, in the Regular Corps of the Public Health Service.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

OFFICERS, WOMEN'S AUXILIARY, NEBRASKA STATE MEDICAL ASSOCIATION

A tentative organization of the Women's Auxiliary of the Nebraska State Medical Association, was formed at the time of the annual meeting of the Nebraska State Medical Association, at Lincoln, last May. Mrs. F. A. Long, Madison, was elected president, and Mrs. Clarence Rubendall, Omaha, secretary-treasurer.

MRS. F. A. LONG

These two ladies have made—are making—history. They have developed the organization during the last year into a strong and actively functioning body and will turn the organization over to others who will carry on; but in the history of the organization they will have the places of pioneers. For this reason, the Journal honors them, herewith.

MRS. CLARENCE RUBENDALL

ANNUAL MEETING, NEBRASKA STATE MEDICAL ASSOCIATION, TENTATIVE PROGRAM

Entertainment

Golf privileges at all Omaha's Country Clubs will be extended to members of the Association throughout the week.

Tuesday, May 11th—8 P. M.
At the Chamber of Commerce Club Rooms.

The Omaha Chamber of Commerce will entertain members of the Association at a smoker. An unusually attractive program of entertainment has been arranged. Lunch will be served at 10 p. m.

Wednesday, May 12th—6:30 P. M.
Fontenelle Hotel Ball Room

Annual Banquet. Presidential address. A high-class musical entertainment will be furnished through the courtesy of the Omaha Community Playhouse Association.

Exhibitors

Medical Protective Assn., Fort Wayne, Ind.
Horlick's Malted Milk Corp., Racine, Wis.
Seiler Surgical Company, Omaha, Nebraska.
Kostka Drug Company, Lincoln, Nebraska.
Magnuson X-Ray Company, Omaha, Nebraska.
Western X-Ray Company, Omaha, Nebraska.

Frank M. Conlin, Brandeis Theatre Bldg.,
Chairman of Committee.

Tuesday Morning

Opening Prayer..............Rev. Edwin Hart Jenks
1. Acute Abdominal Pain..E. G. Johnson, Grand Island
2. Value Medical Inspection Schools..........................E. R. Hayes, Falls City
3. Personal Experience With Ethylene..........................J. W. Duncan, Omaha
4. Popular Fallacies About the Eye..........................S. R. Gifford, Omaha
5. Compression Fractures of the Spine..........................H. F. Johnson, Omaha
6. Complications of Diabetes, Coma and Gangrene..........................Frank Conlin, Omaha
7. Liver Function Tests......Earl N. Deppen, Lincoln

Tuesday Afternoon

1. Some Problems of Modern Surgery..........................Dr. Daniel Fiske Jones, Chief of Service, Mass. Gen'l Hospital, Boston.
2. Symposium on Secondary Infections Upper Urinary Tract:
   Etiology..................Lothar Egen, Hastings
   Clinical Diagnosis...........A. D. Dunn, Omaha
   Urological Diagnosis.....Edwin G. Davis, Omaha
   Medical Treatment.......Clyde Waddell, Beatrice
   Surgical Treatment........A. D. Munger, Lincoln
   Pyelitis in Children..........J. C. Moore, Omaha
   Pyelitis Complicating Pregnancy......................Ralph Luikart, Omaha

Wednesday Morning

Dry Clinics at Fontenelle Hotel.

Wednesday Afternoon

1. Diagnosis of Gastro-Intestinal Diseases from Good History ....Dr. W. C. Alvarez, Mayo Clinic, Rochester
2. Cleft Palate.................Wm. Shearer, Omaha
3. Ruptured Pancreas...........P. H. Salter, Norfolk
4. Prevention of Rickets..........Floyd Clark, Omaha
5. Toxic Adenoma..........H. C. Pederson, Fremont
6. Some Essential Elements of Food.......................... Homer Davis, Genoa

Thursday Morning

1. Oration on Surgery..........Max Emmert, Omaha
2. Symposium on Ulcer of Stomach:
   Etiology and Pathology......A. J. Miller, Omaha
   Clinical Diagnoiss....Warren Thompson, Omaha
   Laboratory Diagnosis......Miles Breuer, Lincoln

X-ray Evidence of Gastric Ulcer............ ....Carl Ballard, Omaha
Medical Treatment..........A. C. Barry, Norfolk
Surgical Treatment ....Benjamin McGrath, Grand Island
3. Case of Intussusception..J. North Evans, Columbus

Thursday Afternoon

1. Oration on Medicine.....Dr. George Covey, Lincoln
2. Symposium on Thyroid Disease:
Pathology and Classification................. ....Clarence Emerson, Lincoln
Basal Metabolism and Blood Chemistry...... ....J. M. Mayhew, Lincoln
Medical Treatment.........Rodney Bliss, Omaha
X-ray Treatment...........E. W. Rowe, Lincoln
Surgical Treatment......S. A. Campbell, Norfolk
3. Chronic Empyema.........Herbert Davis, Omaha

WOMEN'S AUXILIARY NEBRASKA STATE MEDICAL ASSOCIATION

Headquarters—Fontenelle Hotel

Mrs. F. A. Long, Madison..................President
Mrs. Clarence Rubendall, Omaha........Sec'y-Treas.

Tuesday, May 11th—4 o'clock p. m.—Tea, Fine Arts Society, Aquila Court.

Committee: Mrs. H. C. Sumney, Mrs. C. O. Rich, Mrs. A. O. Peterson.

Wednesday, May 12th—1 o'clock p. m.—Luncheon, Blackstone Hotel. Musical program; business session.

Committee: Mrs. Adolph Sachs-Mrs. C. W. Pollard, Mrs. C. C. Tomlinson, Mrs. A. P. Overgaard, Mrs. Herbert Davis, Mrs. J. Harry Murphy.

Banquet with State Medical Association, 6:30 p. m. Fontenelle Hotel.

Thursday, May 13th—10 o'clock a. m.

Automobile drive about the city visiting the Hattie B. Munroe Home for Crippled Children.

Committee: Mrs. J. P. Lord, Mrs. J. A. Young, Mrs. H. von Schulte, Mrs. Floyd Clarke.

Automobile Committee: Mrs. A. C. Stokes, Mrs. Rudolph Rix.

Publicity Committee: Mrs. D. T. Quigley.

NEBRASKA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

The annual meeting of the Nebraska Academy of Ophthalmology and Otolaryngology will be held at the University Club, Omaha, Monday, May 10, 1926. Dinner at 7:00 p. m., followed by reports of clinical cases and several very interesting papers. All members of the Nebraska State Medical Society, especially interested in diseases of the eye, ear, nose and throat, are invited to attend.

—Clarence Rubendall, Sec.-Treas.

THE SOCIETIES

At the **Omaha-Douglas County Medical Society** meeting, March 23, 1926: Dr. H. A. Miller presented some pathological specimens which were presented at the University Hospital Clinic several days ago. First a mediastinal tumor taken from the body of a boy 18 years old, which differs only from a lympho-sarcoma clinically in that it did not respond to x-ray treatment. There was metastasis to the pericardium and both pleural cavities and the liver. The cell structure is rather interesting in that it resembles thymus gland cells. The diagnosis of malignant tumor of the thymus gland was made for three reasons: 1st, the similarity to Hassal's corpuscles, and, 2nd, the gradation of cells between those which are of the epithelial type and those which are stroma, and third, and of least importance, the fact that the thymus is completely destroyed by tumor growth.

The second, a heart which was taken from a Negro who recently died in the University Hospital, is an example of tuberculous pericarditis. A very thin pericardium thickened by fibrous exudate and breaking down of tissues with but few tumor cells.

Dr. L. D. McGuire presented a clinical case, a young lady who shows the remarkable results sometimes obtained in spinal cord surgery. This woman had a pain in the back eight or nine years, a terrific pain that used to wake her up at night; it was worse at night and was relieved somewhat by getting up. It began radiating around the chest, she was treated for pleurisy and neuralgia and focal infection. Finally she became unsteady in gait and she had a sensory level at her waist line and there was paralysis from that region downward, also the rectum and bladder were involved. Blood findings negative; a perfectly normal spinal fluid. She had a marked pachymeningitis in an area about one or two centimeters in length, which actually constricted the cord just as a tumor would do. This was removed and I want to show you what the lady can do today. At that time she was totally paralyzed, could not move her legs, could not feel from the nipple line downward and had total sphincter loss. She was out to a dance the other night and danced every number.

Dr. E. C. Sage read a request from the inspector in charge of the Bureau of Animal Industry asking for cooperation of the medical society in the study of Tuberculosis in Animals; the eradication of bovine tuberculosis is the hope of the campaign.

A delegation from Fremont was present and was called upon.

DR. WM. JOHN DAVIES, (Fremont): We are here this evening to see if we can get a little cooperation on the subject of our osteopathic and chiropractic brethren, and the various other cults. We have been having some trouble up in our county with them and for the last year have had considerable trouble; and discussion in our own society as to what was best to do on that proposition. One of our members who is an osteopath and also a physician. By vote of the society his name was stricken from the rolls and then we got into trouble over the consultation and surgical attendance of cases in the hospitals. A short time ago we decided that none of us, none of the members of the Dodge County Medical Society, would consult or have anything to do with any of the osteopaths or chiropractors or other cults for the simple reason that we knew nothing about their line of business and they didn't know very much about ours. At a meeting a short time back we signed up an agreement that any of us that had anything to do with the osteopaths or chiropractors in any form would be dismissed from the society. Since then, some of our osteopathic friends have been coming to Omaha and getting their consultation and advice here. There has been not so much of that but enough of it so that our osteopathic friends are making the most of it, of the statement that if they can't consult with Fremont doctors they can come to Omaha and consult with the best there is and bring them up there. So, at the last meeting of our society, we passed a resolution that we thought we would bring before the State Medical Society at its next meeting, which is as follows:

Whereas, it is becoming common practice for various members of the Nebraska State Medical Society to perform services without the assistance of regularly qualified physician or surgeon, and

Whereas it is the opinion of the members of the Dodge County Medical Society that such practice should be forbid, Therefore Be it Resolved that the opinion of the Dodge County Medical Society be communicated to the Nebraska State Medical Society with a recommendation that a by-law be adopted to the effect that if any member of the Nebraska State Medical Society perform services without the assistance of a regularly qualified physician or surgeon in a case where the services of a regularly qualified physician or surgeon is necessary or leave a patient in the care of a member of said cults, that said member so offending shall be dropped from membership in the Nebraska State Medical Society, and his or her name be published in The Nebraska State Medical Journal.

We passed that resolution and thought it advisable to send a committee to your society to see if we could get cooperation in any way on the subject; to see, what, if anything, could be done.

I believe that is about all there is to say for the time being and we want to thank you for the opportunity we have had of coming before you and airing our troubles.

DR. BLISS: You have this communication from the Dodge County Medical Society. It is before you; what is your pleasure?

DR. BARNES: It seems to me the communication Dr. Davies has given us is of great importance. We have a Council of the Omaha-Douglas County Medical Society and I think such things are usually better threshed out in the Council and, therefore, I move that it be referred to the Council and threshed out in their next meeting.

DR. B. W. CHRISTIE: That is hardly fair to the men who have come to us with this resolution—that it should be referred to the council. They came a long way and should be given some consideration; they are entitled to at least some expression of opinion from this Society. Of course, we people in the city, don't see the crying need of this, but a man can certainly see it when he sends a case to an eye, ear, nose and throat man and he says the best place for the patient is to go to an osteopath. I have seen that happen several times. Not long ago I was called to see a case where I advised that the tonsils be taken out, a case of arthritis, that he should go to the hospital and have the tonsils taken out and a complete examination made, coagulation time of the blood and so on. The eye, ear, nose and throat man took the patient and consulted a Christian science practitioner. The man in general practice gets that right along. The surgeon is being protected on fee splitting — I never split a fee and never intend to, but sometimes I don't know whether it is right or wrong; but the general practitioner has got to do something. Men are coming in telling me if I don't buy some mechanical instrument or rub them with something I won't practice medicine in five years. I am told that by men doing special work, and if any man is entitled to protection it is the general practitioner, and it is about time they call for it. I think before this is referred to the council we should at least let the delegation get an opinion on it.

DR. DAVIES: We expected this would be sidetracked and put before the council. Gentlemen, we think this is a very, very serious matter so far as the general practitioner is concerned. We are not going to fight the osteopaths, we are going to leave them alone. We don't go out to fight them, but we simply leave them alone.

DR. WILLARD POWELL: I appreciate very much these gentlemen coming here this evening—we invite everybody to come and we are really very glad to have them here, but this is quite a problem and we have a working body that represents the Omaha-Douglas County Society, known as the Council, and for the visiting members' information, that Council is not organized for the purpose of sidetracking. If this council fails to perform satisfactorily, if I am here, which I probably will be, there will be some attention paid to it that will be very satisfactory to the visitors. However, I can say here that I am absolutely for them, I am glad to see there are some bodies that have nerve enough to separate the wheat from the chaff and I am for them. But I don't see how this society can really take any action until it is put up to the Council, then the Council will report back to the society and the society can then take action. That is the only way we can really handle it. I think anyone could get up and express himself as to how he feels about it and you may go back to Fremont feeling a little better because they will all agree with you; but end results are what you want, and I for one want to help you and I think the thing should go through in regular and proper form.

DR. RODNEY BLISS: It does seem to your temporary chairman that this question is a very important one. However, Dr. Powell has voiced the policy of the Medical Society when he tells you that these problems are first discussed by the council and the council is not a place to sidetrack anything, and if this motion passes I want our doctor friends from Fremont to know that we are certainly not making any attempt to sidetrack them.

DR. BRIDGES: I move that they be invited to come to the next meeting and this question will be threshed out at that time.

Motion unanimously carried.

Question called for, and after Dr. Barnes' motion had been seconded it was put to the house and unanimously carried and the communication referred to the Council for attention.

Dr. Sachs at this time took the chair and the regular scientific program was proceeded with as follows:

Dr. Michael G. Wohl read a paper on "Symptoms, Lesions, of Avitaminosis (Beri-beri and Kerato-malacia) Occurring During the Course of Diabetes Mellitus". (Illustrated by Lantern Slides).

Dr. Frank M. Conlin read a paper on "The Diagnosis and Treatment of Diabetic Coma", with case reports and slides. He also had two young lads now under treatment for diabetes at the meeting.

The semi-annual meeting of the **Third Councilor District Medical Association** was held at Tecumseh, April 1, under the joint auspices of the Commercial club and the Johnson County Medical society. The invitation in part read as follows:

"If you know all there is to be known about Medicine or if you do not enjoy the association of your fellows, you do not need to attend".

The program follows:

"X-ray Diagnosis of Gall Bladder Pathology", Dr. W. A. Rush, Beatrice; discussion led by Dr. C. L. Hustead, Falls City.

"Differential Diagnosis of Some Common Eye Diseases", Dr. Sanford R. Gifford, Omaha; discussion led by Dr. J. C. Tucker, Beatrice.

"Pneumothorax" Demonstration on Patient with Pulmonary Tuberculosis, Dr. S. O. Reese, Lincoln.

"Hypoglosso-facial Anastomosis for the Cure of Facial Paralysis". Two cases. Moving pictures. Dr. Alfred J. Brown, Omaha. Discussion led by Dr. J. Stanley Welch, Lincoln.

"The Prevention of Deformity and Ankylosis in Joint Injuries and Joint Diseases", Dr. H. Winnett Orr, Lincoln; discussion led by Dr. H. R. Miner, Falls City.

"The Liver and Its Function", Dr. J. M. Mayhew, Lincoln; discussion led by Dr. F. W. Buckley, Beatrice.

Before the **Madison County Medical Society**, Norfolk, March 30, Dr. J. Jay Keegan, Omaha, gave an address on "Brain Abscess". Before the same society at the April meeting at Madison, following a chicken dinner, Dr. George W. Covey, Lincoln, gave an address and demonstration on "Periodic Health Examinations".

Before the **York County Medical Society**, April 15, Dr. Arbor D. Munger, Lincoln, spoke on "Upper Urinary Tract Infections". A dinner was served at the McCloud Hotel in connection with the meeting.

Dr. G. Alexander Young, Omaha, spoke before the **Gage County Medical Society**, Beatrice, March 23.

At the March meeting of the **Otoe County Medical Society**, Nebraska City, Dr. S. S. Wilson, was elected president; Dr. W. D. Gibbon, vice president; D. D. Stonecypher, secretary-treasurer, and Dr. W. D. Gibbon, delegate.

The society endorsed a resolution favoring the movement for a new hospital in Nebraska City. Medical economic problems were discussed.

HUMAN INTEREST TALES

Dr. N. J. O'Brien, has located at Creston.

Dr. A. J. Jennison, was elected Mayor of Harvard.

The Medical Arts building, Omaha, is approaching completion.

Dr. C. B. Hayes, recently from Falls City, has located at Dawson.

Dr. R. J. Murdock, Blair, was reelected Mayor at the spring election.

Dr. Clyde Hardy, is about to change location from Ravenna to Omaha.

Dr. A. L. Barr, has left Nebraska City to locate in southern California.

Dr. F. J. Schleier, has been appointed Fire Department physician in Omaha.

Dr. and Mrs. A. O. Faulkner, Lincoln, spent several winter months in California.

Dr. F. L. Frink, Newman Grove, was elected mayor for the third consecutive term.

Dr. H. B. Landis, was elected president of the Broken Bow Public Service Club.

Dr. A. A. Bald, Platte Center, has been reappointed county physician of Platte county.

The marriage of Dr. A. L. Schneider, Brady, and Miss Flora Crane, Denver is announced.

Dr. Herman Busman, until recently meat inspector at Omaha, has been transferred to Chicago.

Dr. Hanns B. Mueller and Miss Henny R. Cramer, Lincoln, announce their marriage, April 18th.

Dr. W. O. Bridges, Omaha, silently, as is his wont, made a trip to Honolulu during the late winter.

Dr. A. F. J. Hansen, Omaha, who has been ill in a Lincoln hospital for some time, is convalescent.

Dr. Lynn J. Putnam, Omaha, who has been doing postgraduate work in Vienna, is expected home May 1st.

Dr. T. L. Weeks, has moved from Talmadge to Nebraska City and has become associated with Dr. Chas. G. Zimmer.

Dr. and Mrs. James R. Kalar, Anselmo, announce the arrival, March 20, of James Gordon Kalar, weight, ten and one-half pounds.

A second unit is to be built to the Nebraska University hospital, Omaha, during the season of 1926 at a cost approximating $225,000.

Dr. E. E. Griggs, Scottsbluff, while doing postgraduate work in Philadelphia, developed a surgical disease and underwent an operation.

The 7-year-old daughter of Dr. and Mrs. J. C. Gillespie, Falls City, suffered a concussion of the brain when struck by a passing auto.

Dr. A. B. Walker, Lincoln and Dr. A. C. Armitage, Haigler, were each fined $400, violating the Harrison narcotic law, to which each pleaded guilty.

An alleged criminal operation resulting in the death of the patient has brought two western Nebraska physicians under the eyes of the law.

Dr. H. L. Kretschmer, Chicago, gave a lecture before the Lancaster County Medical society on infections of the urinary tract, the latter part of March.

Dr. Carlton Ernstene, a Nebraska City boy, for the past year at the Ford hospital, Detroit, has been made an assistant to Dr. F. W. Peabody, faculty member of Harvard Medical School, Boston.

Dr. Joseph Van Ackeren, a Cedar Rapids, Nebr., boy, a senior at Creighton medical college, has been appointed to one of the Government Health and Research laboratories, effective July 1.

Dr. Lydia L. Schaum, who has spent several years doing missionary work in Peking, China, will be a guest of the Nebraska Association of Medical Women at their meeting in Omaha, May 11.

Dr. Rudolph Bollmeier, who had been an assistant physician at the Hastings State hospital for some time was dismissed when it was discovered that he had no license to practice in Nebraska.

Dr. Provan Kopczynski, much heralded bone specialist, who came to Omaha some months ago, according to the daily press, disappeared from Omaha leaving a trail of unpaid loans and accounts.

Dr. L. B. Pilsbury, former Lincoln alienist; since 1918 in the Army medical service in the Philippines, at San Francisco and at Fort Leavenworth, has recently been transferred to the Walter Reed general hospital, Washington. Dr. and Mrs. Pilsbury visited in Lincoln recently.

NECROLOGY

JAMES S. LONEY, Omaha; Creighton University, College of Medicine, 1911; a practitioner in Omaha since graduation; member of Nebraska State Medical Association; died of pneumonia, February 17, aged 39 years.

MINOR MORRIS, Alliance, Nebr.; Medical College of Ohio. 1890; prominent general surgeon and practitioner of western Nebraska; member Nebraska State Medical association and prominent in medical organization work in Box Butte county; member Army Medical Corps during the World War, at one time in charge of hospital at Fort Meade; died March 22, after an illness of two months, from arterio-sclerosis, aged about 62 years.

C. E. VANDIVER, Ogallala, Nebr.; Ensworth Medical College, St. Joseph, Mo., 1887; sometime practitioner at Guide Rock, but from 1910 to 1916 at Minatare and since 1916 at Ogallala; member Nebraska State Medical association; a man who visited the noted clinics of the country repeatedly to keep abreast of the onward march of medical progress; died after a five hour illness of angina pectoria, March 26, aged fifty-five years. Dr. H. A. Vandiver, Ogallala, is a son.

"It is a mistake to assume that in electing Von Hindenburg Germany made a misstep. It was only a goose-step."

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THE PHYSICIAN AND PROGRESSIVE THOUGHT*

H. J. LEHNHOFF, M. D.,
Lincoln, Nebraska.
President, Nebraska State Medical Association.

> "Search while thou wilt, and let thy Reason go,
> To ransom Truth."—Browne.

We have often met to consider the principles of scientific medicine. We have often discussed the problems of our relationship to each other. We have often pointed out our own individual problems and our own weaknesses.

I now beg the privilege of presenting a theme which, in a meager sense, is eulogistic. I would draw to your minds the relationship of the physician to the world non-medical. I would relate his influence upon mental progress, if you please, as well as his influence in the progress of the art of healing; his efforts in correcting the beliefs in the philosophy of life as well as his efforts to establish rules of sanitation. I would sound the praises of a few of these disciples of progressive philosophical thought whose initial training was in medicine.

One of the addresses of Sir William Osler, we can recall. It was entitled "Man's Redemption of Man." The address was given to the discussion of preventitive medicine only. As was always the case with Osler's efforts, the address was masterful. However, man has redeemed man in avenues other than that of scientific medicine. Physicians have redeemed humanity in avenues other than in their specific profession. The physician has changed the mental attitude of humanity. He has improved and broadened the thoughts of man. He has led them to a higher plane of thought. He has rectified their ideas of their relationship to each other and magnified their comprehension of duty and service. He has enhanced their capabilities of appreciation of the good and of the beautiful. He has aided in leading them out of the sloughs of ignorance, of fanaticism, and of intolerance. He has strengthened their fortitude in reality, in reason and in truth.

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*Presidential Address, delivered before the Nebraska State Medical Association, Omaha, May 11-13, 1926.

It is natural to surmise that a few of our number have stood out preeminently in this work of mental redemption. Real eminence is never gained but by a few. To the efforts of these few I now beseech your attention.

Before we take this brief look into the lives of these seekers after truth, let one additional thought be considered. The members of our fraternity have always been regarded by many observers as being more or less skeptical. They have been accused of being ultra-materialistic. They have been judged to be free-thinkers to a fault. In the eyes of many critics, physicians have been liberal to a degree that they were anti-religionists. Their principles, it has been said, were not only evolutionary but even revolutionary. Agnostic has been a common appellation.

This thought has run through the literature. Witness some of the oriental laws regarding the practice of medicine. If a physician treat a slave and the slave dies, he must replace that slave with another. If he treat a son of a freeman and the son dies the physician's son must be put to death. If a surgeon operate on a freeman and the latter dies, the surgeon is either executed or must have both hands amputated. These stringent laws grew out of the belief that physicians were thought to be allied with some evil being or some secret illusion. Conjurers were they. Well do I remember when I was home on a vacation from medical school, how I was admonished by one of the older men of Cass county to the effect that when I became a doctor I must always keep the doctors' secret.

Sir Thomas Browne, a physician writing in the sixteenth century, speaks of this idea prevalent at his time. He says, "As for my religion, though there be several circumstances that might persuade the world I have not at all (as, for instance, the general scandal of my profession)."

The thought still persists in our present day literature. W. E. Wells, who seems to have won a place in the twentieth century mind, has written a book called, "The Undying Fire." The book is an attempt at a modern reproduction of the book of Job. You will remember that the weakest character in the Book of Job is Elihu. In Wells' book who represents Elihu? Wells chooses a physician for this character. A physician in Wells' philosophical volume is the weak youth, the egotistical scientist, the bigot. He calls himself an agnostic. He is stubborn, rebellious, sneering. He is cold, impassionate, unsentimental. His is the irrational philosophy. In the debate with the hero of the story, the physician is decidedly the looser. Such is Wells' creation.

What is the interpretation of these criticisms? In the writer's opinion they mean that the leaders of our profession have been in many instances the advance guards of philosophical thought. They were pioneers in the fields of disillusion. They were fearless in their search for the truth. In their advance in thought they naturally disturbed old beliefs, old forms, and as a result, their condemnation.

Now to review briefly the endeavors of a few physicians whose efforts have been not only to correct the physiology of human bodies but also to cleanse the psychology of human minds. Let us begin by sailing away to that interesting land of all lands—the land of the Talmud. I hesitate to name the first individual on my list, namely the author of the Book of Ecclesiastes, for the reason that this author is not definitely known. For years he was considered by biblical critics to be a physician. Of late this point of view has become more questionable. However, inasmuch as we have always considered this author as a physician, we will continue to think of him as such until proof to the contrary is established.

The Book of Ecclesiastes represents a distinct advance in thought measured with the books of the Bible that preceed it. The idea of the relationship between Jehovah and his people changes. The prophets come to have a higher conception of their god-head. No more does he punish the wicked and favor the upright. Sinner and sinless are awarded equally. The tears of the oppressed are unheeded and power is often on the side of the oppressor. "All things come alike to all." This philosophy is distinctly modern in comparison with the philosophy of those former followers of Jehovah who merely walked around the walls of Jericho and, as a result of their piety the walls of this, the city of their enemies, crumbled. The author wrote "Thou knowest not which shall prosper." He was a pioneer in that thought which had for its cardinal object the adjustment of the relationships of mankind. And we think that he was a physician.

Let us now cross over to Greece, that country which marked all time in the advance made in philosophical thought. First may we attend the record of a physician not well known.

Empedocles lived from 490 to 430 B. C. What was he more than a physician? He was a states-man, a prophet, a physicist, a philosopher and even wrote some poetry. In fact it is said that Aristotle called him the father of rhetoric. Only by transposing ourselves back to the fifth century B. C. can we appreciate the thought of this physician. Empedocles believed that there were four primal elements: Namely fire, water, air and earth. All organic structure was made up by different combinations of these elements. Nothing new comes into being. The only change that can occur is the change in the juxtaposition of element to element. In his crude way he laid the foundation for the theory of the survival of the fittest. He believed in a similarity of relationship of structure in plants and animals, including man. All have sense and understanding.

Knowledge depends upon the relationship of elements outside of us with elements within us. The organs of sense receive effluxes which continually arise from objects around us. For instance, certain particles go forth from an object and meet certain particles in the eye—hence the phenomena of vision.

All plants and animals are linked in one chain. At the top of the scale are the prophet and the physician.

Some of the ideas of Empedocles were adopted by Plato and Aristotle.

Myth and legend followed this early thinker. One story was to the effect that he threw himself into the crater of Etna, in the hope that men, finding no trace of him, would suppose him transcended to heaven. But, (so the story runs), his hopes were cheated. The volcano cast forth his brazen sandals and betrayed his secret. True history, however, relates that he died as the result of an accident.

And he was a physician.

The age of Grecian renaissance could not be passed without at least a word concerning Hippocrates. His relation to medicine you all know. However, his originality in other lines must not be forgotten. He revolutionized the scholastic tendencies of this period. He cast superstition not only out of medicine but also out of the progressive mind in general. He revolted against charms and incantations. In a word, Hippocrates as much as any one man of the wonderful age in which he lived, succeeded in eliminating philosophy and metaphysics of myth and of the supernatural. He fathered not only modern medicine but also modern thought.

Now let us re-cross the Mediterranean and enter again that amazing land of the Israelite. We seek a brother. We find Saint Luke.

Luke was a real physician. Believing that the record of the accomplishments of the Nazarene and his followers had not been written with sufficient authenticity, Luke decided to write the facts himself. So he wrote the book which bears his name and he also wrote the "Acts of the Apostles." Of course Luke was not an apostle. He was after their time. The apostles were all Jews. Luke was not a Jew. He was of Greek lineage.

Luke's writings are probably nearer the facts than any of the other gospels. However, like the other gospel writers he was something of a propagandist. All scholars agree that Luke wrote the purest Greek of any of his contemporaries.

Luke met Paul in the East and accompanied him on his preaching tour to Antioch and to Tarsus and to Rome and to many other points. He cared for Paul professionally during that travel. It was Paul that named him "the beloved physician."

One hesitates to comment on the efforts of Luke. By his work he shall be known for all time. To attempt to eulogize him one could easily mar the beautiful story of his life by the dullness of one's pen. His pity for the slave whom the second century placed on a level with any beast of burden and to defend whom was unlawful, his sympathy for the frail and suffering, his compassion for womanhood and particularly for motherhood, soars above common praise. Someone has said of him, "His was a beautiful soul from which has come one of the most beautiful books ever written."

And he was a physician.

Let us again enter the boat and sail on the Mediterranean. We pass great measures of time and space. We finally arrive in Italy in the fifteenth century. We are attracted to one Girolamo Savonarola. He was a medical student for a number of years. Whether he ever practiced is questionable. A love affair turned the course of his life. He entered a monastery. He passed six years in seclusion. He preached at several points including St. Marks in Florence. He left the latter place to return again at the age of thirty-eight. In a few years he became the civil as well as the religious ruler of Florence. At the age of forty-four he was overthrown, convicted of heresy, and burned at the stake. History plainly indicates that the heresy for which he was convicted consisted principally in condemning the morals or lack of morals of his day. He denounced the practices of both church and state. That he dreamed dreams and had visions is undisputed. That he had peculiar beliefs incompatible with twentieth century thought is granted. It must not be forgotten that he lived in Italy in the fifteenth century. On the other hand, that he championed the principles of righteousness and liberty and justice, principles which the religious and civil authorities could not and would not tolerate, is beyond question. That he suffered indescribable physical torture repeatedly in dungeon, on rack, and at stake rather than foreswear these principles, is an historic fact. That his life stands as a monument to the slow process of establishment of these principles, is a blessed realization.

And he was a physician.

We again take our Mediterranean boat and sail to France. We will cross the boundary to that citadel made famous by its spirit of liberty and by its sordid persecution, namely Geneva, Switzerland. There we hear the story of Michael Servetus. He was born in 1511. He studied medicine at several points. At Paris he was a student under Gunther and Dubois. He taught at the medical department at Paris and while there wrote several scientific articles. He practiced in Vienna for twelve years.

Later he came in contact with John Calvin, the so-called reformer, at Geneva. On account of his writings he was arrested and thrown in prison where he remained for months. He finally escaped and while attending services at Calvin's church was re-arrested, was tried, was convicted of heresy and was burned alive. It is said that the over-religious zealot, John Calvin, himself applied the torch to the fagots.

To discuss the religious and social beliefs of Servetus would not become this occasion. Let it be said, however, that he was a liberator. He was free to discuss policies of Protestant, of Catholic, and of temporal order. He was individualistic. He stood for freedom of thought and liberty of worship. Such a spirit was not tolerated in the sixteenth century. He endeavored to reveal the bland truth. This is a very impolitic thing to do. The naked truth is very disturbing to some people and to many institutions. Even in our day this principle is applicable. If you want to meet with more reactions than you have ever experienced before, just tell the whole truth and nothing but the truth for a week or even for twenty-four hours.

No man of the sixteenth century stands out more prominently in the endeavor to establish freedom and liberty of thought than does this physician, Michael Servetus.

Since his death several monuments have appeared to serve his memory. One was erected in 1876 at Madrid. Another in 1903 at Champel; a statue in 1907 at Paris; in the same year another at Aramnise; another in 1910 at Vienna. In 1909 a monument was placed at the site of his execution. The means for this monument were collected principally in the United States. Some of the money was given by people living in Lincoln and in Omaha. The dedication address was delivered by a Bostonian from the pulpit at Geneva formerly occupied by John Calvin and in the church in which Servetus was arrested.

Before we leave France let us look in upon one of the individuals whose character helps to embellish the period of reconstruction following the revolution. Four figures stand out pre-eminently during this time. They are Mirabeau, Voltaire, Robesspiere and Marat. Jean Paul Marat was a physician. He studied at Bordeaux, at Paris, in Holland, and at London. He was physician at St. Andrews, England, for some time. At the age of forty-three he was appointed by Charles X as physician to the King's Guards.

He became interested in experimentation with heat, light, and electricity. He interested Benjamin Franklin, who visited him often. Goethe was his constant admirer.

At forty-six he resigned his court appointment. The following year he wrote several political pamphlets that were not favorable to the reigning powers. He became interested in the State Assembly which, as a republican citizen, he addressed a number of times. In short, from this time on he became a definite and leading figure in the revolution. During this period Marat, like many others who were promulgating the new thought, was obliged to live under very adverse conditions as regards both food and housing. As a result he contracted an intractable skin disease. He sought relief from this skin lesion by sitting in a warm bath. While in such a bath on July 13, 1794 he was visited by a political fanatic, who upon gaining the presence of Marat, stabbed him to death. The fanatic was a woman. Her name was Charlotte Corday.

To endeavor to reveal what Marat represented would only weary you. To know that he stood with Robespierre, and Mirabeau and Voltaire and Rousseau and Benjamin Franklin and Thomas Paine in the endeavor to free human personal liberty from monarchical subjugation; to establish representative forms of government; to promulgate the policies of freedom of speech, of press and of church, is enough. He is presented here for the purpose of calling to your minds the fact that he was a physician.

Our journey would not be complete without a day in good old England. Here we visit another memorable character. We are not obliged to go to England to visit him. Through his book we can visit him in most any library. It has been in libraries for four hundred years.

That book is Religio Medici.

The author is Sir Thomas Browne.

Do we know him as a physician? Few of us do. He practiced the greater part of his life. Religio Medici needs no comment. A book that has been in our libraries for four hundred years, needs little comment. Sir William Osler placed in his library a volume from each one of the fifty-five editions. It is in no wise a medical treatise. It has to do with the philosophy of life. Concerning this book Dr. Osler wrote as follows: "The charm of high thoughts clad in beautiful language may win some readers to a love of good literature; but beyond this there is still a greater advantage. . . . . . Carefully studied, from such books come subtle influences which give stability to character and help to give a man a saner outlook on the complex problems of life. Mastery of self, conscientious devotion to duty, deep human interest in human beings . . . . . . these are some of the lessons which may be gleaned from the life and from the writings of Sir Thomas Browne."

Religio Medici lives. It will continue to live as long as there remains in the minds of men that spirit of appreciation of the lives of those immortals whose living made life more livable.

We again board our boat and sail towards home. We have passed without comment many a shrine whose history illuminates the progress of mankind. The names on these shrines help to make up the roster of our professional family. Some of these names which are associated with histories which will not be reiterated herein, are the following:

Pierre Chaumette, of the French Revolution.

Joseph Le Conte.

David Livingston, the Scottish explorer and missionary.

Jean Louis Agassiz.

L. Galvini.

Ernest Haeckel.

Herman Ludwig Helmholtz.

William James, the psychologist.

Oliver Wendel Holmes.

Charles Darwin.

Georges Clemenceau.

There are hundreds of others unknown to me and thousands more unknown to written history.

Bright stars are they, few in number as bright stars are always few. Bright stars that led the way through the long, dark night of ignorance into the dawn of the morning of knowledge, which savors of peace and magnanimity. In that morning we now live. The fullness of day approaches.

Somewhat depressed we land at the harbor of our nativity. Before our arrival we know that there is one gone. We have left England where his marble slab is.

He was born a Canadian; his last years were spent in England; for twenty years he was with us.

We Americans have a claim on him. We want him to be a part of us; we want to be a part of him.

His thoughts were not confined to medicine alone. He wrote many articles and delivered many addresses on subjects not medical. However, it was the exemplification in his daily life that taught a life philosophy. What has been said of him in this regard is myriad. Any attempt at emulation on these pages would be empty repetition. Permit one quotation from the pen of Dr. Shattock: "Wide and accurate learning; enthusiasm in the persuit of truth; a character in which elevation and charm are singularly marked and rarely blended; a personality which wins perforce the love, admiration, and respect of all who come within his influence; a kindly eye which sees the good in every man and thus stimulates him to better it—these are the main threads woven into the fabric of this beautiful life."

He gave of himself. He gave of himself freely without diminution of strength.

A saying which he often repeated both privately and publicly was that biblical thought which reads as follows: "He that findeth his life shall lose it, and he that loseth his life shall find it." Herein lies the truth of his being. A greater tribute can hardly be paid his memory than to apply this, his own favorite aphorism to himself.

Years add to our appreciation of the good and the great. The years to come will increase our realization of the fact that by this man's having lived, the plane of living of the English speaking people will have been raised.

We are again home. We sit in the glow of our own hearth. We muse. When we muse we hope.

We hope that the field of medicine will develop more individuals of the type that we have just reviewed. Would that such as these could be born again. Would that the apostles of Aesculapius could again become the disciples of unsullied reason and the followers of Hippocrates the ecclesiastics of simple reality. Would that myth and miracle could be set aside forever. Would that fear and selfishness could be blotted out. Would that fanaticism and heresy and intolerance would never more be a part of us. Would that extreme faith might be seasoned with a little doubt. Would that the golden rule could be applied not only to personal action but also to mental attitude. Would that the limitations of mental development would be unhampered by rule or writ and that the growth of individual consciousness would be untutored and unattended by conventionality or by mob spirit. Would that the time were soon when, not only within sacred portal or shrine, not only in commemoration of the past or in revelation of the future, but in our every day life, at our daily task and in our daily thought, we might truly "worship in spirit and in truth."

STAPHYLOCOCCUS SEPTICEMIA*

CLINICOPATHOLOGICAL PRESENTATION OF THREE CASES, TWO WITH AUTOPSY FINDINGS

B. C. RUSSUM, M. D.
(From the Department of Pathology, Creighton Medical College and St. Joseph's Hospital, Omaha, Nebr.)

To you, as students and practitioners of medicine, pathology is important insofar as it sheds light upon your clinical problems. With this fact in mind, I shall attempt to illustrate to you how a knowledge of the pathology of any condition will better enable you to understand the lesions and anticipate future developments in your patient.

A clinicopathological presentation is a development of recent years in medical teaching. In it we examine the clinical history, present the interesting organs from the autopsy, and project the microscopical pathology on the screen, sc that all simultaneously can see the lesions. It is an excellent method of viewing the case as a whole, an improvement on either mere clinical presentation, microscopical study of isolated slides representing certain pathological conditions, or study of museum and gross tissues without clinical history. Of such importance do we think the case method in teaching pathology, that we have introduced it to a limited extent in our sophomore year, assigning the students in groups to a detailed study of a clinical abstract, autopsy protocol, gross preserved tissues, and microscopic slides from individual cases.

Because of the extreme seriousness of staphylococcus septicemia and its tendency to follow apparently trivial local infections of the skin and elsewhere, I shall present three such cases in some detail, analyzing their clinical and pathological findings. It is a rather uncommon condition in St. Joseph's Hospital, and we have seen only eight such cases in the last 371 autopsies.

Case I. Girl of 14, with sudden onset of pain in region of left hip, two weeks after extraction of tooth; fever, nausea, vomiting and delirium; staphylococcus aureus in blood culture; pyemia; death; autopsy.

Case II. Boy of 12, with sudden onset of pain and swelling about right knee; nausea, vomiting, and fever; similar symptoms in left leg; acute pyogenic osteomyelitis; staphylococcus aureus in blood culture and in smears from bone at operation; improvement; discharge from hospital.

Case III. Male of 17, with chill and fever, pain and tenderness in left thigh and about left hip, following the occurrence of a boil on hand; delirium; coma; death; autopsy.

CASE I

Miss ——, a schoolgirl of 14, was admitted Oct. 21, 1923, on the service of Dr. J. M. Shramek, complaining of pain in the left hip of one week's duration. She had had a lower left biscuspid tooth extracted two weeks before, the exact pathology at that time being unknown. Two months previously she fractured her left clavicle and sprained the left hip.

The present illness began suddenly with pain about the hip, radiating down the leg. She went to bed, but the pain grew worse. The next day she developed a fever, headache, nausea, vomiting, tenderness about the left hip and hypersensitiveness over the whole body.

Her family history was unimportant. She had had scarlatina and influenza, and was always "nervous."

Physical examination, made upon entrance to St. Joseph's hospital, revealed a well developed and nourished female apparently about 15 years old, lying on her back. The skin was hot and dry. The expression was anxious. Blood pressure was 100-90, temperature 104.4 F., pulse 96, respirations 22. The heart action was rapid. There was generalized abdominal tenderness and tenderness over left hip and thigh, but no redness, swelling or loss of motion of the hip joint. Roentgenological examination of the left hip and pelvis revealed no bony changes.

The routine laboratory tests were as follows: Urine: Specific Gravity 1023, acid, trace of albumin, no sugar or acetone bodies; occasional leucocyte and squamous epithelial cell.

Blood: Hemoglobin, 80%; erythrocytes, 4,300,000; leucocytes, 5,400; differential—polymorphonuclears, 73; small lymphocytes, 12; large lymphocytes, 12; and eosinophiles, 3; Wassermann, negative.

I shall follow Barker's method of working out a clinical diagnosis in analyzing this case history.

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*Lecture and demonstration given at Creighton Medical College, Oct. 3, 1925, and previously, before Creighton Post-Graduate Medical Society.

Rearrangement of data according to systems:

Name: Miss——, Age, 14, schoolgirl.

Complaint: Pain in left hip, of one week's duration.

Previous infections: Two weeks before present illness had trouble with teeth and had one extracted.

Operations: None.

Traumata: Injury to left hip and fracture of left clavicle 2 months ago.

Habits and temperament: Rather nervous type of child; worries a good deal. Sleeps well. Drinks tea and coffee.

Respiratory apparatus: Negative.

Circulatory apparatus: Pulse 96; heart tones good quality; blood pressure 100-90.

Blood and hematopoietic system: Hemoglobin 80, red blood corpuscles 5,400,000; white blood corpuscles 5,400 differential, polymorphonuclears 73, small lymphocytes 12, large lymphocytes 12, eosinophiles 3. Wassermann negative by both icebox and incubation methods.

Digestive system: Trouble with teeth two weeks before onset of present complaint, nausea, vomiting, and inability to retain food at onset of disease.

Urogenital apparatus: Normal menstrual history. Few pus cells and trace of albumin in urine.

Locomotor apparatus: Sudden onset of pain and hypersensitiveness, without swelling or decreased motility, in left hip.

Negative x-ray findings.

Nervous system: General tenderness and hyperesthesia, headache, vomiting, irrational.

Metabolism and endocrine systems: Negative.

DIAGNOSTIC SUGGESTIONS

Consideration of the above brings forward at least three outstanding diagnostic suggestions:

1. Suppuration about left hip, metastatic in origin. The implications following such a suggestion would be to find the source and to isolate the organism from the blood stream, if there is a bacteremia. Accordingly, on Nov. 4, 1923, an examination of the mouth, keeping in mind the history of tooth extraction, revealed a puffiness about the left lower first molar, and this tooth was extracted by Dr. E. A. Litchfield. No pathology was found at the root of the tooth, but puncture was made in the floor of the mouth into an edematous submaxillary gland. On Nov. 3, 1923 a blood culture was taken and in 24 hours developed a staphylococcus. This organism developed a yellow pigment and the colonies on a blood agar plate were surrounded by clear zones in 48 hours.

2. Another possibility was meningitis, because of the nausea, vomiting, fever, and general hyperesthesia. Opthalmoscopic examination of the fundi by Dr. F. W. Heagey revealed venous engorgement of the discs, but spinal puncture obtained a clear colorless fluid, containing no increase of globulin, 8 small mononuclears; the Lange test was 0-0-0-0-0-0-0-0-0-0, and the Wassermann, negative. The fluid was under a slight increase of pressure.

3. A third possibility was a peritonitis. There was diffuse tenderness, but no localizing signs and no abdominal distention. The vomiting present at the onset soon subsided.

So the diagnostic conclusion based upon the identity between the facts accumulated regarding the patient, and deduced implications of the first suggestion, would be: "acute staphylococcic septicemia, originating in inflammation about left lower first molar tooth, with a septic embolus lodging about left hip.

Let us get clearly in mind some of the terms in common use in infections. A septicemia is a condition where bacteria as well as their toxins are distributed throughout the body by the blood and lymph channels. In toxemia the soluble toxins formed at the site of growth are, without the dispersion of the germs themselves, diffused through the blood and other body fluids. In pyemia fresh suppurative foci develop as a result of the distribution of the organisms in septicemia. Bacteremia means the presence of organisms in the blood stream; they are present only for short periods at infrequent intervals, most frequently during chills. A few hours before death, in sepsis, many bacteria, some of which are not active in the original process, may make their way into the circulation.

The common portal for the entry of staphylococci is the skin (paronychia, superficial infections, furuncles, and carbuncles). More rarely do they enter from the lesions of impetigo, eczema, vaccination, or from the mucous membranes of the urogenital tract or throat.

POSSIBLE DEVELOPMENTS

Let us briefly consider the possible developments in this patient: Staphylococcus, in its growth, tends to localize, as in furunculosis and impetigo contagiosa, and pyemia results when portions of thrombi break off and lodge elsewhere, causing in the various systems:

(1) Respiratory: Congestion, edema, a noncharacteristic bronchopneumonia, or abscesses of the lungs.

(2) Circulatory: Cloudy swelling, fatty changes, and abscesses of the heart; endocarditis, especially mitral; petechial hemorrhages of endocardium and pericardium.

(3) Blood and hematopoietic: Secondary anemia, leucocytosis; swollen lymph nodes; acute splenic tumor.

(4) Digestive: Petechiae in bowel lining.

(5) Urogenital: Edema and suppurative nephritis, beginning often in the cortex and extending into the medulla.

(6) Locomotor: Osteomyelitis, especially in

long bones following mechanical injury. Occurs most often in children.

(7) Nervous: Abscess of brain, with extension to meninges.

So we may expect any of the above lesions in this patient.

Prognosis: Mortality 70%. When septicemia follows furunculosis, recovery is rare. Mortality after osteomyelitis 40%.

ACTUAL DEVELOPMENTS

Developments in this patient—continued delirium. Developed pain and swelling about the right elbow, and in the left forearm. She became involuntary. There were petechial hemorrhages of the skin. Signs of bronchopneumonia and a pleuropericardial friction rub developed. Then followed coma and death.

DIAGNOSIS BEFORE AUTOPSY

The final diagnosis before autopsy would be staphylococcemia; acute bronchopneumonia; acute fibrinous pleuritis; purulent infiltration of the soft tissues about the left hip, right elbow, and in the left forearm; cerebral edema; petechial hemorrhages of the skin and serous membranes; cloudy swelling of the heart, kidneys and liver.

AUTOPSY

At autopsy the anatomic diagnosis was: Staphylococcic septico-pyemia with abscesses of the soft tissues over the outer surface of the left ilium, multiple abscesses of each kidney and heart muscle, multiple septic infarcts of each lung, thrombosis of the left internal iliac vein, acute fibrinous pleuritis, bilateral, petechial hemorrhages of the endocardium; gingivitis, acute exudative, left, lower jaw; acute splenic tumor; edema of labia majora; fatty changes of liver. Cultures from heart blood, lung infarct, and abscess of soft tissues produced hemolytic staphylococcus aureus.

MICROSCOPICAL

Microscopic examination of tissues: You will observe in the micro-projection now on the screen, that there is a well defined region in the myocardium made up of pus cells and debris. Similar multiple abscesses are present in the cortex and medullary portions of the slides of the kidney, with purulent infiltration of the nearby kidney tissue. In the lungs you will see extensive necrosis and inflammatory reaction, with marked hemorrhage throughout the greater part of the section. There were also focal necroses in the liver and acute hyperplasia of the spleen.

This patient illustrates the origin of a staphylococcic septicemia from a mucous membrane, with extensive development of pyemic foci in the viscera.

CASE 2.

1. Anamnesis.

1. Preliminary data—E. R., Case No. 20029, 12 years old, student. Admitted to service of Dr. F. J. Schleier, March 24, 1925.

2. Present illness:

A. Onset March 17, 1925 with pain and swelling of right knee, and fever. No preceding injury or known cause. Nausea and vomiting appeared, with fever. On March 19, 1925 symptoms in right knee decreased, but left knee became swollen and tender.

B. Symptoms on admission to Hospital—tenderness and swelling of both knees.

3. Previous History:

A. Diseases of childhood—Measles; chicken pox; tonsillectomy in 1920. About February 25, 1925 two deciduous teeth extracted, causing no trouble afterward.

4. Family History—irrelevant.

2. Status praesens.

(Only abnormalities mentioned)

1. General:

A. Dorsal decubitus posture and legs flexed.

B. Body temp. 104.

C. Left leg swollen from knee to ankle and fluctuation over upper third and outer aspect of tibia. No redness. Bilateral enlarged, painful inguinal lymph nodes.

2. Regional Examination:

Head—Tonsils absent and scars of mucosa of fossae.

Heart and Aorta—Heart rapid.

Abdomen and pelvis—Right testis undescended.

Laboratory (Routine)—Urine: occasional pus cell.

Blood—Hemoglobin 85%; reds 4,650,000; leucocytes 37,250 U. C. differential, polys 77, small lymphocytes 20, large lymphocytes 3.

Wassermann: Negative.

Rearrangement of positive data according to system:

Name: E. R. C. C. Pain and swelling about both knees.

Previous infections: Tonsillitis.

Operations: Tonsillectomy five years ago.

Urogenital: A few leucocytes in urine.

Hematopeietic: Marked leucocytosis.

Locomotor: Pain and swelling both knees. Area of fluctuation outer aspect of left tibia.

DIAGNOSTIC SUGGESTIONS

Diagnostic suggestions and implications following each:

1. Osteomyelitis or osteoperiostitis of bones about each knee joint. There would be history of trauma, swelling and tenderness, location in shaft of long bone, local pain, later purulent infiltration of surrounding soft tissue, often organisms in blood stream, and x-ray evidence of bone destruction.

2. Acute inflammatory infiltration of subcutaneous tissues and muscles: There might be the occurrence of some preceding infectious disease (typhoid, rheumatism), syphilis and trichina, or previous bone involvement. One should inquire for a history of trauma; of eating raw pork (trichina); of close association with dogs

(echinococcus); of a contact with a horse suffering from glanders. There would be redness, heat, edema of skin over region, tenderness and fluctuation.

Further Laboratory Tests Indicated:

1. X-ray of bones of both legs and thighs—done on day of admission and reported by Dr. J. F. Kelly "no bony, joint, or epiphyseal change demonstrable at this time. Probably too early to show any destruction with x-ray."

2. Blood culture—taken soon after admission.

The symptoms, both subjective and objective, fit the first diagnostic suggestion quite well, so a diagnostic conclusion would be: Acute osteoperiostitis, pyogenic, with purulent infiltration of soft tissues.

OPERATIVE FINDINGS

Operative findings on March 24, 1925—12 ounces of creamy pus evacuated from lower end of left femur. Diagnostic: Acute periostitis and septic thrombo-phlebitis. Direct smears of pus—staphylococcus; culture of pus—staphylococcus aureus.

Findings on blood culture—staphylococcus aureus, hemolytic.

POSSIBLE DEVELOPMENTS

Possible developments in this patient—any of the above described lesions of a staphylococcus septicemia, but especially involvement of bone. Osteomyelitis is a most characteristic lesion caused by staphylococci, with destructive lesions of periosteum, cortex, marrow, cartilages and joint. The organism localizes in an area following injury, from an easily recognized focus or some unimportant abrasion. Usually the long bones of children are involved.

The organisms lodge in the shaft of the upper third of the tibia or the lower third of the femur. An abscess forms in the cortex, lifting the periosteum; the bony lamellae are fragmented; a portion of the cortex becomes isolated and floats in the pus as a sequestrum. Foci may appear in other parts of the same bone or in distant parts of the body. Irritation leads to thickening and hardening of some of the bone—eburnation or sclerosis. Abscesses often form in the soft tissues; sinuses lead through the skin and pieces of bone may discharge for a long time. An involucrum may form about the sequestrum as a result of the thickening of the remaining bone. The periosteum is stirred to activity and produces irregular masses of bone projecting from the surface of the bone as osteophytes.

ACTUAL DEVELOPMENTS

Actual developments in this patient:

March 27, 1925—Incision and drainage abscess right popliteal region—diagnosis septic thrombo-phlebitis deep veins of right thigh.

April 13, 1925—Incision and curettment left tibia and right femur—diagnosis: Osteomyelitis upper end left tibia, and lower end right femur.

May 5, 1925—75 c. c. mucopurulent fluid aspirated from right knee joint.

May 7, 1925—Arthrotomy, right knee—diagnosis: suppurative arthritis.

Treatment—Above operative, supportive medical, mercurochrome flushing of wounds. Gradual improvement.

Discharged June 20, 1925 with final diagnosis: Acute staphylococcic osteomyelitis, upper end left tibia and lower end right femur; purulent effusion, left knee joint; staphylococcic septicemia. This patient presented the findings of a sudden onset of bone involvement, with no outstanding focus of origin and no history of injury. When last heard from, he was slowly improving.

CASE 3.

Mr. L. D., age 17, student. Admitted Nov. 12, 1925 on the service of Dr. G. F. Simanek. Died Nov. 24, 1925.

Present illness—Onset Nov. 2, 1925 with development of a sore place on dorsal surface of first phalanx of right little finger. Within two days it became very tender, with a yellow white center. His home town physician opened it, obtaining some pus. It was again opened two days later. That night he developed a fever, which reached 105 F. by morning. Since then there has been an intermittent fever. The day before entering St. Joseph's hospital he became irrational and drowsy. The sore on the finger has been gradually improving and is now practically healed. Since the onset of temperature there has also been tenderness in the left thigh, especially around the joint, most marked on moving the leg. Twice during the past week he has vomited.

Physical examination on admission to hospital: A white male, well nourished, apparently about 17 years old. Admitted on stretcher and lying on back. Listless. Face flushed. Aroused only when spoken to. Irrational. Temperature 97.8; pulse 96; respirations 26. Edematous skin and subcutaneous tissues about left hip, with diminished sensation over the edematous region. Bloody mucus on posterior wall of pharynx. On the dorsum of the little finger of the right hand is a surgical wound which is almost healed. Slight rigidity over entire abdomen. Roentgenological examination by Dr. J. F. Kelly showed "No bony or joint pathology demonstrable in the left hip area at this time. Too early."

Laboratory findings: Urine: Specific gravity 1020, acid, trace of albumin, no sugar or acetone bodies; occasional epithelial and pus cell; occasional mucous shreds and crystals. Blood: Hemoglobin 89%; erythrocytes 4,730,000; leucocytes 13,900. Differential—polymorphonuclears 92, small lymphocytes 6, large lymphocytes 1, large mononuclears 1. Culture—taken on October 17, 1925—Staphylococcus, slightly hemolytic after 4 days.

Dr. Simanek made a preoperative diagnosis of "suppurative osteoarthritis, left hip." On October 13, 1925 he did an arthrotomy and drainage of the left hip joint. The operative findings were "The left hip joint was under great tension and filled with fluid. A great deal of bloody purulent material was evacuated from the capsule. All the tissues edematous." The pus removed from the joint was examined with the following result: Direct smear Gram-positive cocci; culture, mildly hemolytic staphylococcus aureus.

Course: Given mercurochrome on October 14, 1925 by Dr. H. J. Jenkins (20 c. c. of 1% solution). In spite of supportive treatment he became gradually worse. On October 17, 1925 a blood culture produced a staphylococcus aureus which was very feebly hemolytic. He died on October 24, 1925.

Autopsy—(Abstracted).

Surgical wounds: Over the anterior left thigh, just below Poupart's ligament, is a surgical wound, from the upper end of which protrudes a drainage tube, discharging thick yellow pus; incision closed with silk worm sutures. There are petechial hemorrhages over the left side of back posteriorly.

Scars: On the dorsal surface of the left little finger is a recent scar, covered in part with a blood crust.

Mesenteric lymph nodes: Yellowish; up to 7 m. m. in diameter; retroperitoneal lymph nodes everywhere enlarged. There is a mass of lymph nodes 3 c. m. up and down, just below the level of the left renal vein. All nodes leading down into left thigh are enlarged.

Sternum: Dissecting just behind the sternoclavicular junction there is an abscess filled with thick gray pus. This abscess cavity leads up into the neck and lies to the right of the right sternomastoid muscle, and in front of the carotid sheath. The thyroid is not involved, but on section is quite pale.

Left chest: Partially filled with purulent material; lung is bound to the chest wall in places by fibrinous adhesions; surface is covered with fibrin; smaller than normal and weighs 260 grams. There are a number of small hardened areas, rather wedge shaped, dark red, containing yellow spots here and there. On section, small abscesses and small hemorrhagic regions are evident in the lung.

Right chest: Lung somewhat larger; fibrinous adhesions bind the lower lobe to the chest wall; along the margin, the lower lobe is bound to the right leaf of the diaphragm; gray red regions and small abscesses are evident in the lower lobe.

Heart: Weighs 210 grams. In the wall of the right ventricle are two small abscesses, directly beneath red thrombi which project into the cavity of the ventricle. One papillary muscle contains a necrotic area near its tip. There is thickening of the epicardium over the left ventricle at the apex. The subepicardial fat is decreased.

Spleen: Malpighian corpuscles and stroma clearly seen. No abscesses are present.

Liver: On section it is slightly mottled with yellow but no necrotic areas are visible.

Kidneys: Combined weight is 360 grams. Left kidney is normal in size and consistency; cuts with normal degree of resistance; capsule strips readily, leaving a smooth surface; cortex and medulla are clearly demarcated, with here and there, yellow spots from 1 to 3 m. m. in diameter. The cortex averages about 6 m. m. in thickness. There are some petechial hemorrhages of the lining of the renal pelvis.

Right kidney: Essentially similar.

On dissecting down to the upper end of the surgical wound, the head of the femur is exposed and the joint cavity is found to be filled with pus. On the inner aspect of the left femur, about 5 c. m. below the joint, there is a firm, hard mass, apparently a bony, hard protrusion. There is erosion of the head of the femur.

Anatomical diagnosis: Staphylococcic septicemia, manifested by abscesses of kidneys, septic infarcts of lungs, acute hyperplasia of spleen and retroperitoneal lymph nodes, abscess of left iliac region, abscess in soft tissues of right side of neck to outer side of right sternomastoid muscle, multiple abscesses of wall of right auricle and ventricle, and purulent arthritis, left hip, all secondary to boil on left hand; general emaciation.

Addenda: Cultures of the heart blood, abscess of right side of neck, right pleural cavity, and lung abscesses produced hemolytic staphylococcus aureus in pure culture in each instance.

MICROSCOPICAL

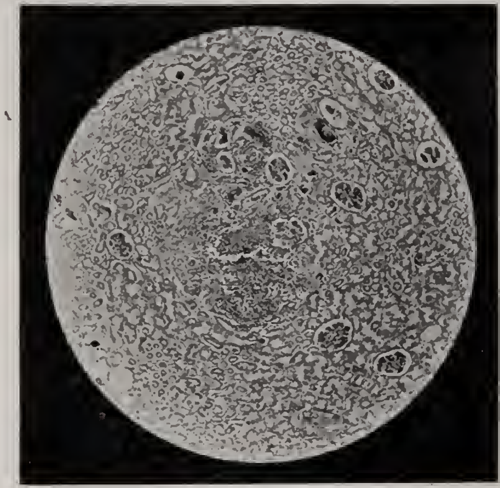

Fig. 1. A Photomicrograph, low power, of a section of cortex of left kidney, autopsy No. 534, showing abscess.

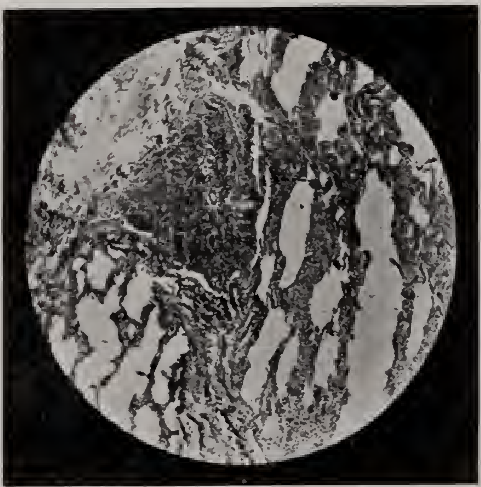

Fig. 2. A Photomicrograph, low power, of a section of lung, autopsy No. 534, showing abscess.

We will now project onto the screen slides of the important lesions. In the papillary muscle of the right ventricle you can make out a well defined abscess. In the kidney sections there are well abscess regions filled with polymorphonuclears and cell debris. In addition you will see a more diffuse purulent infiltration of other regions; necrosis of tubular peithelia, which fail to take the nuclear stain. Although it cannot be discerned well on the screen, if one examines this section with the oil immersion, masses of small gram positive cocci are visible in these necrotic regions. In the lungs there are dense masses of polynuclears, necrotic alveolar walls, and hemorrhage.

This patient illustrates the origin of a septicemia from a furuncle, with the unusual primary localization in a hip joint.

DISCUSSION OF CHEMOTHERAPY

E. B. Piper of Philadelphia reports a series of cases treated with mercurochrome "220" intravenously. He uses 30 c. c. of a 1% solution in distilled water per 100 lbs. of body weight, and 5 c. c. for each additional 30 lbs., with a maximum of 45 c. c. It is useful in staphylococcus aureus and streptococcus hemolyticus and non-hemolyticus, but it is ineffective in streptococcus viridans, and of only slight value in pneumococcus infections. It was first used in G. U. tract infections by Dr. H. Young of Baltimore. Piper reports several illustrative treated cases: (1) Staphylococcus aureaus septicemia, following operative wound, in a surgeon. Recovery. (2) Streptococcus hemolyticus puerperal sepsis. Death. (3) Staphylococcus aureus meningitis following lumbar puncture. Fluid contained many Staphylococci. Permanent recovery followed the use of 30 c. c. of mercurochrome. (4) Staphylococcus septicemia following infected thigh. Mercurochrome and surgery resulted in recovery. (5) Puerperal sepsis with non-hemolytic Streptococcus—recovery. Piper quotes Dr. Fox as saying he never saw a case of staphylococcus septicemia recover before the introduction of the use of mercurochrome. Bad results following the use of mercurochrome may be ptyalism and nephritis.

Barker (International Clinics, March 1925) reviews the results of chemotherapy: (1) Pregl's iodine intravenously is not effective. (2) Dakin's solution, locally—successful in war wounds. (3) Optochin or ethyl-hydro-cuprin in pneumococcic, staphylococcic and streptococcic septicemia-germicidal in animals. Some effect in human with pneumonia but in sufficient doses it is apt to cause optic atrophy. (4) Euquinin and Vuzin, derived from quinine and related to optochin, has been recently developed but is not entirely satisfactory. (5) Dye stuffs of acridin series (a) "Trypoflavin"—More effective in Streptococcic infections than Staphylococcic. (b) "Rivanol"—Effective against Staphylococcus, gas bacillus and others. Used by deep injection into tissues, killing organisms locally.

SUMMARY:

1. Presentation of three cases of Staphylococcus septicemia, exhibiting typical clinical and pathological findings; all had positive Staphylococcus aureus blood cultures; two were fatal and came to autopsy.

2. Staphylococcus septicemia is unusual; it starts from apparently trivial lesions, especially of the skin; it causes multiple abscesses in the soft tissues, bones and viscera.

3. Chemotherapy gives promise of decreasing the high mortality of this type of illness.

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CUT RATES

"Did the operation cost much?"

"No. The doctor gave me his regular cut rates."

MORE BOY BABIES THAN GIRLS

Announcement of the census bureau that there were 911,831 male and 863,080 female babies born in the United States for 1923 has revived the old whiz about "more boy babies are born after a great war than girls because of a universal desire to replace males lost in war."

PROTOZOAN INFECTIONS OF THE BOWEL IN NEBRASKA*

GEORGE W. COVEY, A. M., M. D.,
Lincoln, Nebraska.

After trying time and again to emulate some of my predecessors and write a philosophical paper of some kind with a ring of reform, a bit of medical history, an atttack on the cults or an opinion of present day medical education and the alarming dearth of rural doctors, I gave up in dispair. Consequently you are about to hear an ordinary everyday paper.

I wish to call your attention somewhat briefly to what appears to be an increase in protozoan infections of the intestinal tract, particularly amoeba histolytica infections in Nebraska. Within the past year I have been privileged to see six cases of amoebic infection of the intestinal tract in which the amoebae were apparently responsible for disease, and in two of which death resulted. On one of these two I made a post-mortem. Two cases of amoebic infestation were complicated by the presence of chilomastix mesnili. Two other cases of chilomastix infestation were seen, and in at least one of these, this organism seemed to be responsible for a severe diarrhoea. One case showed infection with trichomonas intestinalis with a marked diarrhoea.

The following table shows some interesting points concerning these cases:

TABLE NO. I

CASE	HISTORY NO.	SEX	AGE	HOME	ORGANISM	EVER OUT OF THIS AREA?
I	1124 (Hosp.)	F	35	Murdock, Nebr.	Amoeba histolytica	No
II	3392 (Colburn)	M	4½	Wabash, Nebr.	Amoeba histolytica	No
III	A-5279	F	26	Lincoln, Nebr.	Amoeba histolytica Chilomastix (cysts)	Not Since Infancy
IV	A-14537	F	29	Iowa	Amoeba histolytica	No
V	A-13230	F	39	Lincoln, Nebr.	Amoeba histolytica Chilomastix mesnili	Yes
VI	A-12643	F	28	Lincoln, Nebr.	Amoeba histolytica	Yes (Germany)
VII	A-6639	F	28	Iowa	Chilomastix mesnili	No
VIII	A-14565	F	55	Friend, Nebr.	Chilomastix mesnili	No
IX		F		Blair, Nebr.	Trichomonas intestinalis	No

THE TWO FATAL CASES OF AMOEBIC DYSENTERY

Case I. (Hosp. No. 1124). Female. Age 35. Referred to me at the Lincoln General Hospital by Dr. O. E. Liston, of Elmwood. The patient lived near Murdock on a farm, and so far as I can find has not been away from this locality. In the summer of 1924 she had a moderate diarrhoea for one month. Was not in bed and saw no blood or mucous in stools. Aside from this she had been in good health and of normal weight without loss until the onset of this present trouble. She was admitted to the Lincoln General Hospital, September 28, 1925, in very poor condition, complaining that for eight weeks she had had diarrhoea, pain in the abdomen and pain on defecation. At first there was sickening pain in the bowels at time of stool, which occurred three or four times a day. Seven weeks ago noticed blood and mucus in stools. Pain and diarrhoea continued gradually to grow worse, and finally began to vomit so diet became limited largely to fluids. Has gradually grown weaker, lost weight and had more stools, more pain and tenderness in abdomen.

On admission patient looked very ill, temperature 98.4. Pulse 130, soft, regular. Blood pressure 104/70. She is pale. No evident lesions of head, neck, heart or lungs. Abdomen slightly distended, movement limited on respiration. Liver not enlarged. Tender on deep pressure over whole abdomen, most marked in right and lower portions. No muscle spasm and no masses. There is possibly shifting dullness in the flanks. No fluid wave. Had six stools during the last night. Perspires freely, especially at night.

Widal for typhoid and paratyphoid negative. Blood culture negative. Hemoglobin 79 per cent; white cells 11,000; nothing remarkable in differential count.

Proctoscopic examination: Instrument introduced without discomfort. Rectal wall angry red with flecks and patches of muco-purulent material irregularly scattered over the surface. High in the rectum on the posterior wall are two large, irregular, deep ulcers. They are about 2 to 4 cm. long, with red, overhanging edges. Scattered over the wall of the rectum and on the second valve are numerous smaller ulcerations from 2 to 10 mm. in diameter, irregularly circular with grey base. Material taken from the base of ulcer shows numerous active amoebae histolytica.

Various symtomatic remedies were used and the patient received emetine hydrochloride gr. ½ to gr. 1 per day by hypodermic and 500 cc. kerosene by bowel every third day. She continued a steady downward course, with little fever but more and more rapid pulse, increased sweating, finally nausea and hiccough, and died on the 10th day after admission. A request for post mortem examination was refused.

The second fatal case was seen in consultation with Drs. Neely, Colburn and Wiedeman, and I publish a resume of it here with their permission, together with the notes I made at the autopsy and on the tissues examined afterward.

Boy, 4½ years old, apparently healthy. Vomited at bed time on November 23, 1925. Diarrhoea began at once and bowels moved about every hour throughout the night and for three days, then about every three hours. On the fourth day some blood in stools. Dr. O. E. Liston saw the boy on day after onset and found temperature 103° F. Emaciation occurred rapidly. A week after onset the boy was brought to Dr. Neely in Lincoln, where Drs. Colburn and Wiedman saw him in consultation and sent stools to Dr. F. D. Barker and to me for examination. Amoeba histolytica was found in these specimens. I saw him in consultation on the 12th day of his illness. He was stuporous, temperature 99°, pulse 132, respiration 22. Extreme emaciation, dry skin. Widal and blood culture were negative. White cell count was 11,800. He received emetine hydrochloride, kerosene in colon, stimulants, etc., but died on December 6th, 1925, fifteen days after onset of illness. Post-mortem examination was done five hours after death. The following notes are a resume of the important points of the post-mortem record:

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*Chairman's address, Section on Medicine, annual meeting, Nebraska State Medical Association, Omaha, May 11-13, 1926.

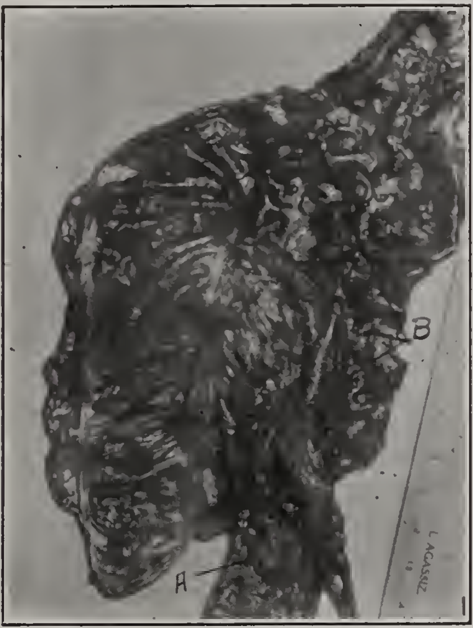

FIG. I. Ileum and cecum from Case II showing hyperplasia of Peyer's patch, "A" in ileum and marked hyperplasia of lymph nodes along mesenteric border of cecum, "B".

There is extreme emaciation. Marked lymphatic hyperplasia throughout the mesentery of the large and small intestine. (Fig. I). Peyers patches and solitary follicles hyperplastic. On removing the colon, masses of enlarged lymph nodes are noted along the attached border, most prominent along cecum and ascending colon. The inner surface of the bowel is red and there appear to be numerous raised areas in the mucous membrane, most marked in cecum and ascending colon. Microscopic sections of this tissue show that the raised areas are islands of more or less normal mucous membrane, while over the remainder of the surface the mucosa is partly, and in some areas wholly, destroyed. The ulcerations are small, i. e. the places where the mucosa is entirely gone are small but the apex of each reaches well into the submucous tissue. In the submucosa, as deep as the muscularis, numerous amoebae are found, chiefly about the depths of the ulcers but also lying in the tissue interspaces. The boy undoubtedly died of an acute fulminating amoebic dysentery.

FOUR CASES OF AMOEBIC INFECTION OF BOWELS WITHOUT ALARMING SYMPTOMS

The following cases (III, IV, V and VI) are perhaps of more interest than the fatal ones because of the difficulty in making the diagnosis, or rather the sparsity of evidence which would lead one to look for parasitic infection of the intestine and the feeling that one has that he may have overlooked a large number of these in the past.

The first one of these (No. III), is a single woman, age 26, living on a farm in the edge of Lincoln, and working for the past eight years in a clinical laboratory. She was born in Russia but came to Lincoln in infancy and has not been away from the locality since. She considers herself healthy, the only things of note in the past being recurrent attacks of tonsillitis and an acute attack of appendicitis with appendectomy in 1919. Prior to that time and recurring about every three to six months there has been a fairly marked secondary anemia, with a leukopenia and relative lymphocytosis. In addition to this, occasionally there will be a sudden cramping in the abdomen with urgent desire to empty the bowel. The stool will be loose and explosive and usually the one defecation causes temporary subsidance of the pain. At times this may occur daily for several days at a stretch and frequently about the time of the noon meal. Finally we were led to examine these loose stools while warm, and found vegetative forms, amoeba histolytica in enormous numbers, together with some small cysts. Dr. F. D. Barker, of the University, identified the cysts as those of Chilomastix mesnili and agreed with our identification of the amoeba. Patient was given emetine hydrochloride gr. ½ twice daily for five to six days. The symptoms have not recurred for three months and repeated stool examinations have failed to show the presence of amoebae since that time.

The second of these four (Case IV) is that of a woman, age 29, single, from a farm in north central Iowa. She came in complaining of an indefinite symptom complex consisting of (1) fag; (2) puffiness under the eyes; (3) stomach disturbance consisting of gas in stomach and bowels, occasional morning vomiting and a little pain in the right side of the abdomen; (4) lack of endurance; (5) loss of five pounds weight in four months; (6) nervousness. Careful and repeated physical examination failed to reveal any diagnostic signs. The urine on one occasion showed a trace of sugar but this was never found again. The blood count showed a slight leukopenia with 6 percent eosinophilia. This, together with the intestinal symptoms, led us to examine warm stools and in the third stool amoebae were found in small numbers. They were characteristic of amoeba histolytica. This patient did not return for medication beyond what had been instituted prior to final diagnosis, which was merely of a tonic character.

The next case (No. V) is that of a woman, single, aged 39, a teacher. Had been in Lincoln only three years, coming here from the east. She presented herself, March 30, 1925, with the following history:

Past: Acute, catarrhal jaundice in 1906. In 1909 ill with fever two months, thought to be typhoid but not definite. Tonsillectomy in 1917. Appendectomy, 1924. In 1923 had some edema of ankles and slight elevation of blood pressure.

Present: (1) Exhaustion. (2) Dizziness. (3) Pain in precordium and through to back. (4) Swelling of ankles. (5) Diarrhea, with frothy or mushy or watery stools. Diarrhoea began immediately after appendectomy three months before. Has five to six or more stools per day. Occasionally dark blood in stool. (6) Lost 17 pounds in weight in nine months.

Physical examination revealed a temperature of 99.2, pulse 86, blood pressure 128-132/84. Otherwise there were no remarkable findings. No procto- or sigmoido-scopic eaxmination made.

Urine showed a trace of indican only. Blood count not remarkable. Gastric analysis showed complete absence of free hydrochloric acid with total acidity maximum fifteen. No blood or bile but consistent trace of mucous. An x-ray of the gastro-intestinal tract was entirely negative except for hypermotility. X-ray of the teeth showed three infected and one questionable.

The diagnosis made was achylia gastrica and infected teeth. The teeth were extracted and the patient put on hydrochloric acid, pepsin and sterile diet. She responded well and followed regime religiously. She returned on April 3, 1926, complaining of increasing diarrhoea with loose frothy stools and abdominal cramps. Had had seven stools that day. Examination was about as before. Blood count not remarkable. She was sent for examination of duodenal contents and warm stool. Repeated warm stools showed no organisms but mucous from the duodenum contained numbers of vegetative form of amoeba histolytica, active together with vegetative forms of Chilomastix mesnili. So-called gall-bladder bile showed no infection. On stovarsal one gram twice a week, she has shown remarkable subsidance of symptoms, now having three or four formed stools per day. Duodenal irrigation with tap water at 110° F. was done twice without apparent benefit.

The fourth case of the group (No. VI) is of interest from an entirely different standpoint. She is a nurse, aged 26, a native of Germany but in Lincoln since 1920. She first came in for examination in October, 1924. The symptoms, physical and x-ray findings led to the diagnosis of chronic, active pulmonary tuberculosis. The sputum was scant in amount but repeated examinations were negative. On one occasion two single acid-fast organisms were found. While she was in the hospital an occasional stool containing gross blood was noted and there was occasional morning vomiting. Now, after eighteen months' treatment, she is improved in every way except there is occasional vomiting and temperature 99° to 99.5° at times, though she walks two to three miles per day. Duodenal lavage two months ago showed numerous active forms of amoeba, corresponding in every way to amoeba histolytica. She has had 12 grams of stovarsol (acetarsone) in six weeks. The last duodenal lavage was negative.

Since amoeba histolytica has been repeatedly identified in several tissues of the body outside the digestive tract and liver and including the lung, one is led to ask whether it may be possible that lesions in the lung resembling those of tuberculosis can be induced by the organism?

The three remaining cases, two of which (VII and VIII) showed vegetive forms of Chilomastix mesnili in the stools and one (IX) trichomonas intestinalis, will not be described in detail. Case VII was admitted to the hospital with a marked diarrhoea, emaciation and prostration, fever, and recovered when the organisms were finally eliminated from the bowel. Case VIII had no bowel disturbance but presented a chronic productive arthritis. Case IX suffered from persistent and refractive diarrhoea with emaciation. Her disease had been present for months and began during an epidemic of diarrhoea at a farm home for old people. Several of her mates died of it. She was lost sight of before her organisms were destroyed and the outcome is undetermined. In only two of these three (Cases VIII and IX) was duodenal contents examined and while chilomastix was found in VIII, no organisms were found in IX and no amoebae seemed to be present in either.

An interesting point in thinking of the sources of infection in these cases, is that at least six of the nine cases the patient lived on a farm where there were animals, usually swine, and where shallow well water is commonly used. Dr. Frank Smithies has called attention to the probability that these infestations occur by way of water and fertilized garden truck.

1. Nine cases of protozoan infection of the gut have come under my personal observation within a year.

2. Most of these cases have never been out of the temperate zone and excepting two have practically always lived in Eastern Nebraska or Western Iowa.

3. Five of the cases were infected with amoeba histolytica and of those, two, or 40 per cent, died as a direct result of this infection.

4. Two cases of multiple infection were noted.

5. Chilomastix mesnili was found in four of the nine and in at least one seemed responsible for a severe and debilitating diarrhoea.

DIAGNOSIS OF SOME COMMON EYE DISEASES*

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Some of the fine points in ophthalmic diagnosis involve the use of special instruments and special training which put them entirely in the province of the specialist. Many of the common eye-diseases, however, can be diagnosed without any of these things and what I want to do is to review briefly some of the simple diagnostic points with which we have all been at one time more or less familiar, but which the man who is not constantly using them is apt to forget.

A type of diagnostic problem with which every man in general practice is occasionally confronted is the diagnosis between iritis and acute glaucoma. A good deal is said about this in the books, only a small part of which is of any practical value. All that is said about the pain is generally misleading, in fact, many men are so impressed with the idea of the severe pain in acute glaucoma that they label as glaucoma almost any eye condition involving severe pain. In many cases of iritis the pain is just as severe, and these cases are much more common than those of acute glaucoma, a relatively rare disease. The most important differential point is the size of the pupil. Assuming that no drops have been used, if the pupil of the affected eye is larger than that of its fellow, the condition is not iritis and is apt to be glaucoma; if it is smaller, it is probably some form of iritis. In acute glaucoma, the cornea has a steamy appearance, which may easily be differentiated from the opacities on the lens capsule and in the aqueous seen in iritis provided a good light is used, focussed sharply in the cornea by any convex lens. Naturally the tension of the eye is important, and in acute glaucoma a careful palpation through the closed lids will often show a marked hardness of the affected eye as compared to the other eye. In iritis, however, where the lids are swollen and the eye is exquisitely sensitive, it is often impossible to press on it hard enough to tell whether it is hard or soft. If the pupil is not large and we are still in doubt, it is often perfectly safe to try carefully to dilate it. Atropine should not be used for this as its paralytic effect lasts ten to fourteen days, but 2 to 4% cocain or 2% homatropine, the effect of which is brief and easily overcome by eserine or pilocarpine. If the pupil dilates with difficulty and in an irregular shape, leaving tags of iris bound down to the lens capsule, the diagnosis of iritis is certain. Once the diagnosis of iritis is made, atropine or in mild cases, homatropine, should be given, and that quickly, as the earliest stage of iritis is often the only one during which these adhesions can be broken up. To give eserine to such a case mistaking it for glaucoma, may produce a small bound-down pupil and prove as serious a mistake as giving atropine to a case of glaucoma.

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*Read at a meeting of the Third Councilor District Medical meeting at Tecumseh, Nebraska, April 1, 1926.

Another mistake which may easily cause the loss of a patient, if no more serious result, is to mistake a mild iritis for acute conjunctivitis and apply silver nitrate or some equally painful caustic to the lids. The differential diagnosis is often not so easy, but in acute conjunctivitis one drop of homatropine will cause prompt and regular dilatation of the pupil which it will not in any but the very mildest case of iritis. There is usually some purulent secretion in conjunctivitis, which will often show pneumo- or gono-cocci when stained, whereas in iritis there is increased lacrymation but seldom more than a few flakes of fibrin to be seen. Of course, in any severe iritis the appearance of the eye, with cloudy aqueous, irregular pupil and deposits on the lens capsule is characteristic, and there is usually pain. In conjunctivitis there is seldom severe pain, only a burning sensation and sensitiveness to light. I have seen an unusual number of severe cases of pneumococcus conjunctivitis this year, especially in adults, and in one, iritis was seriously considered until the pneumococci were found.

While, as I have stated, acute glaucoma is relatively rare, so that a man in general practice may not see more than one or two typical cases in a life-time, another form of glaucoma, chronic simple glaucoma, is exceedingly common, and is quite frequently the cause of one of the most fatal errors a man can possibly make. I saw a typical example of this last week; a man of 80 whose doctor had told him a year before that he had cataracts, and that he should wait till he could no longer count his fingers and then go somewhere for his operation. He had followed instructions faithfully and was now expecting to have his sight restored. Bare light perception was present in the best eye, and in both eyes the nerves were almost completely atrophic, and hopelessly so, from chronic simple glaucoma. The history of gradual painless loss of vision combined with the increased density of the lens in old age, giving a slightly yellowish reflex when light is thrown in the pupil, quite naturally suggests the condition of cataract, so common in old age. Chronic simple glaucoma is not easy to diagnose. The tension is often not much increased, requiring a tonometer to detect the increase, the pupil is often normal in size, there is no congestion, and most misleading of all to the man who thinks of glaucoma only as acute glaucoma, there is no pain. The history is usually exactly like that of cataract, of a gradual decrease in vision, usually affecting one eye first and then the other. Cataract, however, can be easily diagnosed, by the appearance of a definite opacity just back of the pupil. The yellowish reflex of the senile lens may at first glance be confusing, but if a cataract is advanced enough to reduce vision below 20/100, something more than this can nearly always be seen, a definite opacity in the lens. To see this often requires good focal illumination, easily obtained from any good light by a convex lens, and it may be necessary to dilate the pupil to see it. Here again, atropine is to be avoided, but 2% homatropine will do no harm, provided its effect is watched and that eserine sulphate, 1 grain to the ounce is used afterwards until the pupil comes back to normal size. If no opacity is seen, it is practically certain that some other condition than cataract is present, and this is quite likely to be chronic simple glaucoma which requires very prompt and careful treatment if any of the little sight that remains is to be saved. Even if a few spokes of opacity are seen in the lens, if the vision is very poor, chronic glaucoma is often present as well, being the real cause of the poor vision, while the lens opacities are perhaps of little importance. As before stated, it is difficult to diagnose simple glaucoma without special instruments, and other conditions occur fairly often in old people which reduce vision equally, such as optic atrophy, closure of the central vessels, etc. The main thing, however, is to remember that unless enough lens opacities can be definitely seen to account for the poor vision present, there must be some complicating factor present, which should be carefully searched for.

I will only speak of the diagnosis of one more condition, very common in this part of the country, trachoma. The condition most commonly mistaken for trachoma is follicular conjunctivitis. A notable example of this mistake carried out on a large scale was revealed a few years ago in the report of a school-survey in Lincoln, Nebraska. From the figures given, the world was shocked to learn that about 50% of Lincoln school children were afflicted with trachoma. It was evident, however, that some one, not an ophthalmologist, as we afterwards learned, had been putting down as trachoma all cases with the follicular hypertrophy of lymphoid tissue so common in school-children, so-called school-boy's conjunctivitis. In this condition there are follicles as in trachoma, but they are well separated from each other, and usually occupy only the lower fold, and there are none of the other changes in the lids which are nearly always present in trachoma. These are white scars, between the areas of active hyperplasia, curving in of the lids, and opacities of the cornea. In trachoma, the follicles fuse together and usually are profuse in the upper fold and in the upper lid itself which is seldom affected in follicular conjunctivitis. It is true that there are mild cases of trachoma where the diagnosis is difficult, but in typical cases there should be no difficulty.

In closing, allow me to emphasize again the importance of actually seeing a cataract before being satisfied that a gradual loss of vision is due to cataract, and the fact that chronic simple glaucoma is usually a painless disease with exactly the same clinical history as that of cataract.

THE DOCTOR AND HIS CHARGES*

BY A NEBRASKA SURGEON.

You are about to embark on your professional career. A profession is a calling in which one professes to have acquired some special knowledge to be used for the advice, instruction or guidance of his fellowmen for their service in some art. You will note this definition stresses the obligation of the professional man to society. In times past the three learned professions, i. e., law, medicine and theology, in addition to great learning, were supposed to represent the highest type of civic and personal virtues — they adorned the state and dignified their members. Personal fortunes or state grants of money usually provided amply for material needs and personal wants. Nowadays the profession of medicine demands as high ideals as it did in the earliest times and the training received by the student of medicine fits him well to uphold these ideals. The atmosphere in which you have received your scientific training has been one of altruism and philanthropy. During the six or seven years you have been in college and hospital you have spent most of your time with the sick and ailing poor. Material recompense for the help you gave them has never entered your calculation. I doubt if during your entire course you have ever heard one of your instructors mention the question of a fee. Yet, now that you are about to enter actively your chosen field of endeavor you will find that, in the struggle for success, there will develop professional rivalries and, sometimes, unworthy self-interests. It will be difficult to maintain the ideals that have been inculcated in your school days. It is not the purpose of this lecture to teach you to develop new avenues of income. It is hoped you can be shown, however, without becoming covetous, the importance of the business side of medicine. We are living in an age when there is little science that is not bartered and little art that is not sold. You owe it to your patients as well as to yourselves and to those whom you may acquire as dependents, to give some consideration to the business side of your career. You have spent six or seven years preparing yourself for your work. Most of you are twenty-five or twenty-six years old. Your income should be sufficient to maintain you in the position you must occupy in the community in which you reside. The manner in which you live must be in keeping with that of the stratum of society in which you move. Further, as a person of higher and special scientific learning you will demand intellectual food and mental stimulus. To provide for these necessities out of the income from a small and none too opulent a clientele is indeed a problem. You must consider yourself a business man whose investment is your training and whose capital is your professional ability. You must remain intellectually and professionally honest and yet you must realize on your investment and make reasonable interest on your capital.

CHARITY

Every true physician makes freely his contribution to charity. I do not mean by this the contribution of money to endow charitable institutions or to send missionaries to convert pagans. Both are laudable but let these be left to the people fitted neither by temperament nor by training to render personal service to the person who is in need of help. This personal service is ,after all, the most gratifying form of giving. The physician is peculiarly fitted to do his share of charity. The need or occasion is never lacking in our work for us to thus employ our professional knowledge. There is no better investment for a young physician than a reasonable amount of charity work. It stimulates his interest in his work, it broadens his experience, it widens his acquaintanceship and in every way has a wholesome effect upon his character. Even in the small prosperous community there are always some few families that need medical attention for which they cannot pay or for whom payment means great hardship. In the cities there are the outpatient dispensaries and other forms of free clinics where service is always obtainable. But one of the first things a young physician must learn is to be circumspect in doling out a free service.

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*This is one of a course of lectures given for the last three years to the Senior Class of the Creighton University College of Medicine on "Medical Economics". Several of the talks are given by non-faculty and non-medical lectures

It is advisable, of course, and it is indeed necessary that one limit the amount of charity work he does. Many people consult a physician as free patients or demand treatment for which they are very well able to pay at least a moderate fee. It is unfair to yourself and to your fellow practitioners to treat these people free of charge. Nowadays there seems to be no stigma attached to the reception of charity in any form and the number who are needlessly and unfairly seeking it is rapidly increasing. A patient who does not give outward evidence of poverty either in dress or bearing is not a proper recipient for free medical attendance and if they ask for it it should be denied. All too commonly nowadays mothers bring their children to free clinics in automobiles, the little patients accoutered with with expensive toys to amuse them while they impatiently await their turn. It does not take long to acquire a large free practice and one should not selfishly deny fellow practitioners their share of this work. Besides, it is necessary that one save at least a portion of his time for work that recompenses him and for recreation and for rest. It is usually found that no patients are so exacting in their demands and so critical in their comments as those who do not pay. Little value is placed on the services of the doctor when they can be gotten for nothing and one sometimes wonders if the improvident and shiftless sufferer should not be left to his suffering to teach him and others of his like the worth of our service and at what a personal sacrifice his ills are treated. But too often the guiltless sufferer is a sick wife or a helpless babe. Besides, there exists a moral obligation on our part and no true charitable act is ever denied its recompense.

COMPUTATION OF FEES

There are many factors that enter into the computation of a fee for a given service. Most county medical societies have fee schedules which are supposed to serve as a guide for reckoning of fees by physicians in the community. Manifestly such a schedule cannot be rigidly adhered to. A common complaint on the part of the laity is the inequality of the fees for like services given to different individuals. Of course, no two cases are alike and even if they were exactly so, you have already had enough experience in handling sick people to know that it is worth twice as much to treat an irritable and dyspeptic old lady for a Pott's fracture as it is a husky and jovial football player for the same injury. The former will make twice the demands on your time and nervous system that will the latter. When you have established yourself in a community and have grown to know types and families you will unconsciously, but very fairly, learn to charge according to the demands on your time made by different people for the treatment of cases of like seriousness and duration.

Another complaint is that rich people are charged excessively and they must pay the fees that the doctor cannot collect from the poor. Indirectly this is true. Surely you and I could not care for the poor for nothing if someone did not pay us enough for our services to live upon. However poor a business man the physician may be he realizes this and when he charges his well-to-do patient a round fee he is unconsciously doing only what the business man does when he prices his merchandise on a basis giving him a reasonable profit after having deducted what he believes will be a fair percentage for bills uncollectable. But, if the truth were known, the average business man makes a woefully small contribution to charity as compared to that of the busy physician and never does his charity involve the personal sacrifice and physical discomfort that does that of the physician. It is no indictment of a surgeon to say he charged so and so, a millionaire, $5,000.00 for an appendectomy. The millionaire would probably have agreed his life was worth that to the community and to his family and to himself. The same surgeon would have performed the operation free had circumstances demanded. It is not possible to set a monetary as value on our work. Health is our most priceless possession. We physicians spend our lives among those who are suffering from disease. Disease begets poverty and poverty breeds disease. We will never be paid at all or sufficiently paid for a large part of the work we do. Yet we must gain our livelihood from our profession and wealth must make its contribution in its fair proportion, which is all any honest doctor asks.

When a business man makes an investment, let us say of $1,000.00, he expects a fair return of interest. We will set it arbitrarily at six per cent. Now your service is your investment. If you have treated a case of pneumonia and your fee is $100.00 and you are paid at once that is a good investment. But if the fee is uncollectable for two or three or four years it is a very poor investment. If you are asked to name a fee it is not wrong to return with a question of whether it is a cash fee or a deferred payment that is wanted. This is in conformity with sound business principles. Or you may name a fee with the stipulation that it will be reduced if cash is paid. We might take a cue from our chiropractic brethren who can sell twelve treatments for $10.00 because they get the money in advance. If you know a patient is always slow in paying bills set your fee accordingly. He must, in jutisce, expect it. If you know he will pay you when the case is completed, further his thrift by setting a moderate fee.

REGULAR MONTHLY STATEMENTS

One reason why we so often remain unpaid is because our service is intangible. It is nothing that can be worn or eaten. Since health is the natural state of the human animal when he has recovered from his serious illness with your aid the sick man will thump himself on his chest and boast about his fine physique and wonderful constitution forgetting about the sleepless nights you spent worrying over him and the gasoline you burned visiting him. Keep him reminded of what a wonderful aid you were to him by sending him regular statements. Regular monthly statements of all accounts due should go out from a physician's office just as they go out from all other business offices.

A patient will think that you are not anxious to collect your fee if you do not send him an immediate statement or if you send statements irregularly and intermittently. A monthly statement is an invitation to pay your bill or at least some portion of it. If the patient thinks your bill is excessive he will at least come and talk it over with you if you have notified him of its amount. To render a service and then neglect to send a statement for the amount due you means not only the loss of the money in some cases but not a few malpractice suits have grown out of the practice of physicians neglecting to send bills. It is well to reiterate that the patient values but very little the service that costs him nothing. If you send no bills following the completion of your treatment many persons will assume that you admit thereby that you have been negligent and incorrect in handling their case and that you are unwilling or afraid to ask for payment. Out of this may develop a suit for damages and when the physician makes his defense capital will be made of the fact that no statement was rendered for the treatment leaving with the jury the inference that the doctor felt, in his own mind, that he was entitled to no remuneration. So the practice of sending no monthly statements is a bad one not only because you will fail to collect money due you but because you may be mulcted by the very people who fail to pay you.

If you are doing a family practice you will find there are many families who have so much illness that they cannot possibly meet your regular fees. Any wage earner with a family can set aside only so much for medical expense and beyond this he cannot go. You would be heartless as well as unfaithful to the true spirit of your profession if you denied his dependents medical advice because he could not pay you to the last penny due you on a regular charge. To reduce charges in such cases does not lay you open to the charge of cutting fees or seeking work at any price. The thrifty heads of large families are not seeking charity—they abhor it. They are willing to pay within their means and if you care for them on however moderate a basis you are making a contribution to society and to your own better self that will prove of high value some time.

Instinctively, physicians dislike to set a fee in advance or for service yet to be rendered. The practice savors too much of bartering and contracting and of setting your talent against a competitor's business acumen. Besides no physician yet contracted to supply medical care for a specific sum of money in the full knowledge that he had made a good bargain, for cases differ so much and so many complications may arise that a reasonable fee is difficult to arrive at in advance. So the practice of agreeing to "take" a case for a stipulated sum is to be discouraged. Yet it is well to remember that your patient, at least the one who intends to pay you, must have some idea of the expense he is going to incur. Beware of the person who tells you "he doesn't care what it costs" and to "spare no expense." He probably doesn't care because he doesn't intend to pay you. Personally, I look upon it as a sign of wholesome horror of debt to have a patient take stock before he incurs obligations and I always, if asked, try to give at least an estimate of probable expense. If you set a fee and the debtor thinks it excessive don't dismiss his arguments as unworthy to be heard. He may convince you of the merit of his case. Usually the physician who refuses to reduce a bill is the same one who never sends out a statement. The two practices are equally unbusinesslike and are to be heartily condemned. If he sent out statements regularly he could probably afford to reduce a bill occasionally.

Whatever fee you name don't do it apologetically or hesitatingly. Set it at what you think you are reasonably entitled to under the circumstances and there will be no need for explanation or deprecation. If it be for service already rendered your patient has a right to discuss it briefly with you if he thinks it excessive. If it be say, for an ordinary herniotomy and your prospective patient tells you he can get it done for less by Doctor Blank advise him sincerely to go to Doctor Blank. If your stipulated fee is a reasonable one, as it should be, he will probably feel your service is worth the value you put upon it and will engage you. Some physicians and surgeons purposely set their fees very high, thus wittingly and intentionally discouraging consultation by the person of average income and limited means. They cater to the wealthier and often misnamed "better" class who pay them well for indulging their temperaments and suffering their eccentricities. I have always felt better repaid, no matter what the respective fees, for restoring health to the mother of five or six children than for having returned to her bridge table a type of woman all too common today.

The question of the fees you charge as related to those of your fellow practitioners may arise. You will find that the fees established in your community are averages from which you are expected and permitted to deviate as your judgment indicates. There can be no just cause for criticism by your confreres because an individual fee seems low or another seems high. To reduce this fee and add to that one is your prerogative and an act based upon knowledge that you, as their medical attendant, and no one else, can have. It is only when your charges habitually exceed or lower those of the community in which you practice that you may be justly criticized. You may ask what is the minimum charge for a specific service? How far, in the case of poor people is one permitted to go in his adjustment of fees? If the patient is poor charge the lowest fee that is commensurate with the value of the time and effort spent in rendering it. Don't cheapen your profession by setting a fee of $35.00 for an appendectomy or $10.00 for a confinement case. Rather say to the patient "my minimum fee is $75.00 or $50.00 as the case may be. Pay as much as you can. When you can pay no more tell me and you will be given a complimentary receipt for the balance." You will thus dignify your profession and, what is equally important, retain your standing in the eyes of your patient. He will not feel that you put too little value in your work and he will feel an obligation to you for having reduced your fee.

I fear there is developing a changed relationship between doctor and patient. My experience does not, though my memory does, go back to a time when a doctor's advice was something for which no adequate payment could ever be made and in turn a patient's trust was something upon which no monetary value could be placed. Both parties are perhaps to be blamed for a certain degree of the lack of mutual understanding now existing. I believe it is well for you to remember, however, respect for your opinion and recognition of your authority, without which nothing can be accomplished, can only be maintained by setting a worthy value on your service. Set a reasonable fee and try to collect it. Don't name an extortionate sum and hope your patient will pay it.

CONSULTANT'S FEES

Your fee as a consultant must, of necessity, vary with the circumstances of your employment and the demands made upon your time. If you are called as consultant this is evidence that you are assuming a portion of the responsibility in a grave case and that your opinion is highly valued. Your charge should be made accordingly. In some communities and among certain groups of physicians the understanding exists that interchange of opinion is to be freely carried out and that no charge is to be added. But you are under no obligation otherwise. You will occasionally be asked to see cases in consultation with irregular practitioners such as osteopaths, chiropractors, etc. The ethics of meeting such people cannot be discussed here. You are justified in naming and fortunate in collecting in such cases, however, a reasonable fee, for you will usually find the cultist has been more than adequately paid in advance. To the Christian scientist, to whom all disease is an "error" the usual fee should be named. You cannot relieve him of his pain for it really doesn't exist except in his fantasy and his money can purchase him no material comforts for there are no such things. If he pays you he will have fewer funds to propagate an entirely unchristian and wholly unscientific faith.

CONTRACT WORK

There arises often the question of "contract work." This was previously mentioned. The term applies as follows: A group of persons, employees of one corporation usually, band themselves together forming a corporate whole. They set aside, out of their monthly wage, a certain sum. This sum is to be used in providing medical attention for the sick members of the society. Some societies provide medical and surgical attention for employees, families, etc., including hospital care and nursing. Others provide limited medical care to employees only. Between these two extremes there are various plans. These societies usually contract for a physician to care for the members at a stipulated salary. Usually the recompense is very meagre. Physicians are often criticized for accepting contracts at what is considered a ridiculously small salary but if it is considered that in the absence of such arrangement most of these society members would become outright charity patients it will be realized that the arrangement is after all reasonably satisfactory and one based upon economic necessity. We should remember that as our country becomes more highly industralized, i. e., as more and more people become wage earners, the economic stress becomes more and more pressing and the difference between the wage and actual want is lessened. As a consequence, there is less money to be spent for medical attention. It should be recognized by the medical profession that its services must be provided either by voluntary societies as above described or by some system of state medicine such as now exists in most European countries and which we all abhor. It is not probable that in our section of the United States, outside of the cities, we shall ever see state medicine for we live in an agricultural area. The farmer is a capitalist in the strict sense of the word and he will always remain so. He will employ the physician he wants without let or hindrance and he will pay him the fee stipulated if it be within his power. But those who practice in the cities will find that practically all wage earners, especially those employed by large corporations have some system of health insurance that provides medical attendance by a salaried physician and a few of the corporations extend this service to the families of the employee.

COMPENSATION INSURANCE

Our state law provides, as does that of nearly all states, that surgical care shall be furnished and a percentage of the wage shall be paid during disability resulting from injury. This so-called "compensation" class of work provides a large and constantly broadening field of endeavor for the physician. It requires accurate records, constant reports and an attention to written detail that is distasteful to most physicians. The fees, which are usually low, are stipulated by law and usually they may not be increased unless cause be shown to the compensation commissioner. This work is interesting and lucrative. On the completion of a case the fee will be paid. It is not advisable to habitually charge fees above those scheduled. They will be met for a short while very probably without complaint. But finally the insurance companies, which are close knit and well conducted business organizations, will demand proof that your service is worth more than that of another physician's which can be secured more cheaply and if this cannot be shown the patronage will be withdrawn. Industrial medicine, as it is called, is a field which is rapidly extending. It presents a great many social and legal aspects that are very interesting. It holds great scientific interest also and is worthy of much more consideration than can be given to it here.

MEDICOLEGAL TESTIMONY

A source of income that is legitimate and may be developed, in a city at least, is that of medical testimony. The activities of some of the best known of our profession on the witness stand are thoroughly discreditable and have, I am sure, done more to lower us in the eyes of the laity more than any other one thing within the last fifteen or twenty years. For two or more well informed and reputedly honest physicians to have examined the same patient or have had read to them the same hypothetical question and to express under oath diametrically opposed opinion needs an explanation that seems to be furnished only by the size of the fee involved. Your opinion will be sought in legal cases and you will be asked to testify as an expert for which you are entitled to collect a reasonable fee. This may vary all the way from $50.00 to $500.00 depending on the amount involved in the suit and the time required. You need never fear the witness stand if you remember at all times that you are testifying under oath and be guided thereby and if you further remember that attorneys as a rule know very little of the matter upon which they are examining you and that if you are in doubt about a given question answer "I don't know" which is literally true. Mediocolegal work is stimulating and profitable and gives an acquaintance among professional and business men which is valuable in many ways.

You are always to remember that in testifying for a fellow practitioner in a malpractice suit that such service is to be rendered complimentary. Ethically, you are bound to do this and besides you may, if fortune frowns on you, need a reciprocal favor sometime.

COMPLIMENTARY SERVICES

The question of rendering gratuitious service to other members of your profession or to their families is a difficult one to decide in some cases. Often times such a close personal or professional relationship exists that no thought of making a charge exists. I believe our ethics teaches that under no circumstances are we to charge a fee. This rule, like all others needs to be proven by being broken occasionally. Some physicians prefer to pay at least a nominal fee to their medical attendant and some cases are so difficult and time consuming as to make it a real financial sacrifice to have charge of the case in addition to foregoing the fee. In such cases the sick physician will usually recognize the injustice he is doing you and will insist on paying something for the care you gave him if he is financially able to do so. Aside from clergymen and nurses I know of no patients who are more unreasonable and less grateful than physicians. It is worth a good fee usually to tolerate a sick doctor. The immediate family should be accorded the same consideration as the physician himself. There is no ethical or moral compulsion extending to other degrees of relationship. Usually there is a reciprocal reduction of fees between physicians and dentists.

I have never made a charge for treatment of nurses unless at their insistence. It is unfair and unreasonable to ask a clergyman to pay you for advice or treatment you may give him. His profession has its compensations but they are not material ones. Many of us would be better off, at least spiritually, if we sought only an exchange of professional courtesy rather than monetary recompense.

FEE SPLITTING

A discussion of fees and ethical practice in connection therewith would not be complete without consideration of the division of fees between physicians or so-called "fee splitting." Attorneys and other professional men refer cases from one to another and, without moral or ethical error, divide the fee. It is not considered ethical, however, for a physician to refer a patient to another (usually from a general practitioner to a specialist) and solicit or accept part of the fee collected by the specialist. The practice of dividing fees is to be deplored for three or four reasons, chiefly:

1. A specialist, usually a general surgeon or a surgical specialist, who lacks scientific qualification can thus acquire a large practice since the referring physician chooses the fee splitter rather than a more competent man because he gets a portion of the fee.

2. It conduces to unnecessary surgery for the practitioner finds his surgical cases a fruitful source of income and he sometimes recommends or urges operations in cases that are not truly surgical. He eases his conscience by delegating the actual surgical assault to an accomplice. The surgeon, in turn, if he has any moral compunction at all in the matter, feels absolved from blame because he is merely complying with the wishes of the patient's own doctor. It will be seen there is thus established a division of responsibility for a censurable act as well as a division of fees—a satisfactory arrangement for all parties concerned except the patient.

3. It raises fees unnecessarily to the patient since the surgeon not only collects his own fee but also adds an equal amount for the doctor. This is hardly a valid objection for the real basis of fee splitting lies in the difference of fees collectable by general practitioners and specialist. The patient places entirely too high a value in the service of a specialist and absurdly underestimates the worth of the services of his family doctor. This makes it possible for the surgeon to collect a fee for the physician which he is not able to collect himself. So the solution of this problem, as of nearly all problems, is one of education. The patient must be taught to realize the value of the service his doctor gives him. He will then be willing to reimburse the doctor directly for his service. The specialist must and will reduce his fees accordingly. This will reduce the number of specialists and add to the quota of family doctors, a consummation much to be desired in my opinion.

Finally, let us say there is not, necessarily, any conflict between professional ethics and the institution of sound business principles in the practice of that profession. There is ethics in all our contact with our fellowmen be it business, social, professional or whatnot. Yours is a profession of high ideals and worthy aspirations. No doubt you were motivated by these when you began the study of medicine. You will best maintain these ideals and further these aspirations and will represent your profession wisely and worthily in the community in which you live by being willing, but prudent, in your charity, moderate and not extortionate in your fees, temperate and yet insistent in your collections.

CROOKED BACKS*

J. E. M. THOMSON, A. B., M. D., F. A. C. S.,
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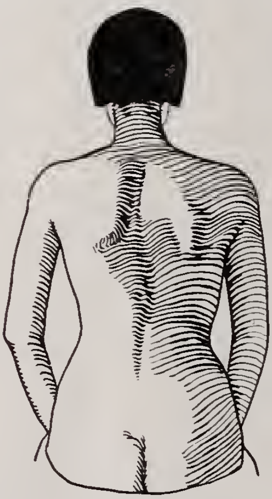
Of all the deformities with which we deal there are none in which the deformity is so difficult to cope with as that of the patient with a crooked back.

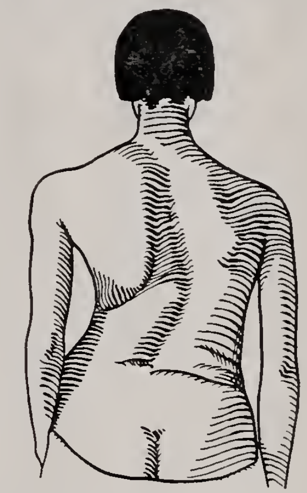
Many of those affected with scoliosis are otherwise normal individuals having full mental capacity with no impairment of the limbs. Yet, unless early recognized and carefully cared for they are stamped by the stigma of a noticeable abnormality of the trunk. They immediately come under the odium of the name "cripple," and are branded as unfortunates, the object of that most admirable virtue, sympathy, which to the recipient is always most objectionable, and is even resented. A parent would look askance at the attention of a scoliotic wearing a cast or heavy brace who was so bold as to call upon their normal daughter and, therefore, on account of the barriers about the social life of the deformed he is prone to evade society and become one of the queer individuals no matter what his intellectual accomplishments or his commercial position may be.



No. 1. Functional type of scoliosis, single curve of lower dorsal and upper lumbar region. (Mild Scoliosis).

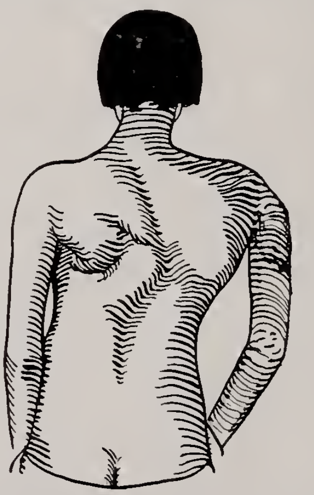
Not a little of the great but woefully deformed poet Poe's bitterness and sarcasm was probably due to a sensitiveness as to his personal appearance. Macauley in speaking of him says, "The diminutive, crooked, sickly boy was eager to revenge himself on society for the unkindness of nature."

The parents of a deformed child are often exploited by unwarranted treatment and operations at the hands of inexperienced to the degree that fortunes have been spent and lives ruined by unscrupulous practitioners of the healing art. These families travel from city to city in this country and abroad in hopes that at the hands of some heard of bard or mystic, their child will be made whole. Stories of this kind are many and pitiful.



No. 2. Structural type of scoliosis, tipping of pelvis deformity of the trunk. (Moderate Scoliosis).

The newer methods of the treatment of scoliosis embody, first, a better diagnosis of the type of the scoliosis, particularly in relation to its etiology and manner of treatment; second, a fuller realization of the limitations of effecting correction of the deformity; third, the stabilization of the spine against progressive advancement of the spinal deformity as well as visceral deformity which will not only influence the function of the viscera but the general health of the patient; by exercise, mechanical apparatus and opera-



No. 3. Structural scoliosis which has severe deformity and secondary curvature and rotation of the spine with very marked deformity of the trunk. (Severe Scoliosis).

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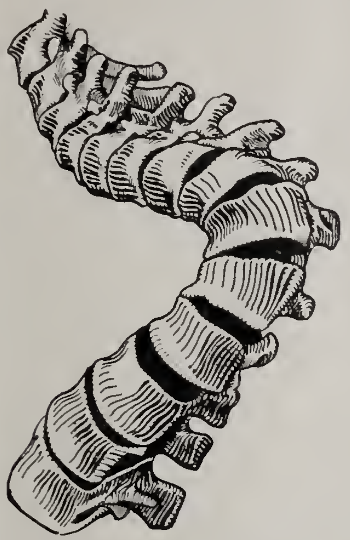
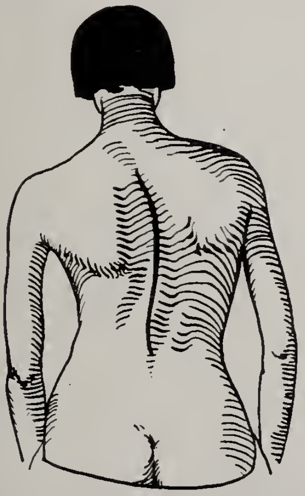
*Read before the Lancaster County Medical Society, February 6, 1926.

tions; fourth, build up the psychology of the patient to a plane of intellectual achievement with which he can cope with the social problems he must meet through life.

The term scoliosis embraces the synonymous idioms, curvature of the spine, lateral curvature of the spine, rotary lateral curvature of the spine. The last is by far the most comprehensive, as one finds always with the lateral deviation, twisting and rotation of the groups of segments involved. With these changes in the position of the vertebrae come anomalies of the nerves in their course from the spinal canal. The muscles and ligaments attached as well, are involved. The pelvis and ribs are often markedly changed. The viscera of the abdomen and thorax are diverted from their normal positions, pinched and compressed with resultant disturbances, in the thorax and gastrointestinal regions.



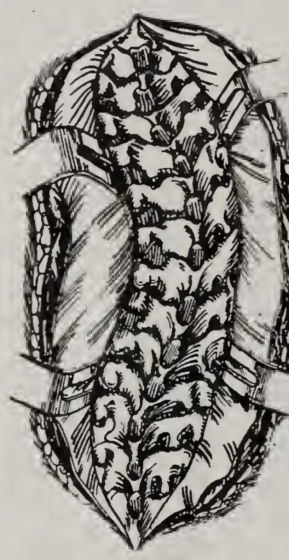
No. 4. Segment of severe scoliotic spine showing the wedge shaped changes in the vertebra and the tremendous distortion angulation and rotation of the vertebra (after Nicoladoni).



No. 5. Line of incision used over spinous processes of vertebra involved in the curvature which are to be fused by operative procedure.

From an etiological standpoint one may consider scoliosis in three groups. First, functional or postural; second, structural or rigid; third, a transitional form which comprises a small group of cases which fall in the functional group first but which ultimately become structural or fixed.

The functional group is made up largely of children who by habit or posture assume constantly a deviation of the spine which they can voluntarily correct and which under proper exercises and guidance, disappears. According to Shilder, twenty to thirty per cent of all school children come in this group. It is usually associated with under nourishment, general weakness, round shoulders, prominent relaxed abdomen, habitual standing on one foot or leaning to one side at a desk, usually a total tipping to the right or left of a single curve of the spine.



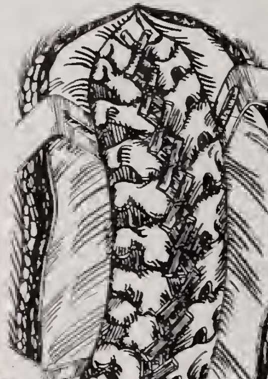
No. 6. Soft tissue and periosteum reflected back from spinous processes and posterior arches preparatory to fusion after the method of Albee, Hibbs, or by one of the modifications of these operations.

Structural or rigid or fixed scoliosis presents complicated curves with changes in the trunk such as have been previously described, which the patient cannot voluntarily correct.

In speaking of the degree of severity of these curvatures it is appropriate to use the terminology of Scoliosis Committee of the American Orthopedic Association—Mild, Moderate and Severe; the severity being judged by the degree of rotation and angulation of the vertebrae.

Among the causes of structural scoliosis, infantile paralysis, rachitis, congenital lesions, torticollis, empyema, inequality of the limbs, diseases of the nervous system, afflictions of the spine, unequal or deficient vision or hearing, congenital dislocation of one or both limbs, organic heart disease and heredity, form twenty-five to thirty per cent according to some authors, and cases without evident etiology, comprise seventy or seventy-five per cent.

Nothing is more deplorable than to place a child having a functional scoliosis in fixation and correction apparatus over a long period of time, yet this is frequently resorted to by those who through carelessness, ignorance or malicious conduct, consider this the proper method of treatment. What these functional cases need is to have a tonic regime of treatment, general up building in manner or habits, carefully guided and regulated exercises to strengthen the weakened muscles, dropping shoulders, prominent abdomen and weak feet. Proper diet, correct living conditions, and the removal of all possible foci of infections or constitutional disturbances that could hold back development are also essential. Only in the more extreme cases, but these are rare ones, is a corrective brace necessary. Then always such a brace should be one which can be removed for exercises and muscle training. The prognosis in these cases is usually favorable.



No. 7. Illustrating the spinous processes split cross ways in four segments turning two portions upwards and two downwards approximating them as near as possible with those of the process above and below. In certain cases of the extremely severe type a fitted bone graft from the patient's tibia is stitched into the region of fusion for additional support. The articular facets are always curetted out prior to closing the wound.

The patient with a structural scoliosis presents a very different problem. More or less permanent advanced changes have taken place in the spine. Groups of muscles on one side have become stretched and the opposite groups contracted. Ligaments are likewise changed and the ribs are deformed as are also the trunk, pelvis and viscera. The curves and rotations are usually complicated and mobility in certain directions is limited. The spine, because of its structure and the strong soft tissue attachments, is difficult to manipulate by force and corrective methods. By the older methods of treatment these patients were subjected to many months and even years of painful and uncomfortable heavy casts embracing in certain instances, not only the entire trunk, but the head as well, only to find that this vigorous treatment had only fairly reduced the deformity from a fundamental standpoint and but slightly, if any, from an anatomical or x-ray standpoint. Further, they were doomed for the rest of their lives to wear heavy protective corsets or braces in order to prevent them slipping back to their original deformity due to the weakening of the muscles by the long period of inactivity. Relapse was almost certain should they lay aside the cursed brace which must always show through their clothes in a tell-tale manner announcing their infirmity.

There is a small group of very mild cases in which, by training, exercises following forcible corrective measures, will not progress, but the major portion of the structural scolioses are too far advanced to warrant such palliative measures.

With the advent of the spinal bone graft operation of Albee, the fusion operation of Hibbs and the various combinations and additions to these techniques by others, we, as orthopedic surgeons, are recognizing more fully the advisability of attaining adequate internal fixation of the spine in these scoliosis deformities after a maximum amount of correction has been accomplished by casts. But operative procedure should never be attempted prior to the corrective treatment as the outcome would be but speculative and the functional result would be only partial.

After the fusion of the spine has become complete a protective brace is worn for a period not exceeding one year from the date of operation. During the later part of this period exercises and muscular training are used to develop strength and equilibrium in the soft structures of the back. Following this procedure the patient will not only have a maximum correction of the deformity, but will not be in constant fear of reverting to his old crookedness because the region involved is stiffened and he will not be embarrassed and made uncomfortable through life by being made the slave of a heavy steel brace or corset which makes well fitting clothes impossible and makes his deformity more evident. With such a new outlook on life he can cope more amiably with the many social and commercial problems which one must face for a successful citizenship in the community.

The magazine Time, speaking of sun spots calls them "solar acne."

MODERN ASPECTS OF NUTRITION: THE PATHOLOGY OF MALNUTRITION

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14. Acid-Base Equilibrium with Reference to Ketogenesis and Antiketogenesis. (Continued).

INTRODUCTION

In the preceding paper we discussed a topic very important to the physician in the treatment of diabetes, especially in the prevention and control of coma. We pointed out the relation of fat and carbohydrate to diabetic coma. In 1904 Rosenfeld$^{(4)}$ wrote the famous statement that fats burn only in the flame of carbohydrate. This assertion implied that when the carbohydrate in the diet is inadequate, the fat "smokes" due to the incomplete oxidation and the resulting formation of ketone bodies. It required, however, the work of later investigators—Shaffer$^{(2)}$ Woodyatt$^{(3)}$, Newburgh and Marsh$^{(5)}$, Petren$^{(6)}$, Wilder$^{(7)}$, Campbell$^{(8)}$, Strouse$^{(9)}$ and Ladd and Palmer$^{(10)}$—to establish a quantitative relationship between the fat and carbohydrate needed to prevent ketosis.

Shaffer$^{(2)}$ contends that some fragment of carbohydrate produced in the body reacts with a fragment of fatty acid (diacetic acid) to form a compound which is more easily oxidized than either carbohydrate or fat or fragments thereof. Edward S. West, working in Shaffer's laboratory, has actually prepared condensation products of acetoacetic ester with ketones, aldehydes and even glucose, which are far more easily oxidized than acetoacetic ester itself. In fact, these new compounds have greater avidity for oxygen than most oxidizable substances. So powerful is the affinity of these new compounds for oxygen, that they remove without the aid of heat the latter element from alkaline solutions of copper salts. They also reduce in the cold alkaline solutions of methylene blue.

THE INADEQUACY OF SHAFFER'S RATIO

Shaffer$^{(2)}$ originally postulated that one molecule of glucose is needed to react with one molecule of fatty acid in order to prevent ketosis. Translating this statement into ordinary terms, we state that the ketogenic-antiketogenic ratio requires 1 gram of glucose for 1.5 grams of fatty acid. Woodyatt$^{(3)}$, in his method for dietary adjustment in diabetes, adopted this ratio. It was soon found by clinical investigators that the ratio was too low, and that in more severe cases of diabetes, it allowed the use of an amount of fat too small to supply the calories required for a maintenance diet.

THE RESTRICTIONS IN PROTEIN AND IN CARBOHYDRATE IMPOSED UPON THE DIABETIC ORGANISM

It must be remembered that the diabetic is restricted in carbohydrate intake. He is also restricted in protein intake. Hinhede$^{(12)}$ maintains that patients with severe diabetes, as a rule, do not remain sugar-free on a high protein diet unless the total energy intake is kept so low that severe undernutrition results. Wilder$^{(7)}$ claims that an excess of protein exerts a specifically depressant effect on the ability of the organism to utilize glucose. Protein, because of its specific dynamic action, stimulates heat production. A high protein diet increases the basal metabolic rate. Wilder, Boothby and Beeler$^{(13)}$ have shown that an increase in the metabolic rate lowers the carbohydrate tolerance of the diabetic. The increase in the basal metabolic rate induced by a high protein diet may also cause weakness and loss of weight in the diabetic, whose diet may be restricted in caloric value because of limitations in the quantities of fat and carbohydrate ingested.

The actual amount of protein required to maintain nitrogen equilibrium has been worked out by Chittenden$^{(14)}$, Hinhede$^{(12)}$ and Sherman$^{(15)}$. The amount is stated to be from 0.66 gram to 1 gram per kilo of body weight. The lower figure is used in calculating diets for adults, and the higher figure for those still in the process of growth. *It is to be remembered that these amounts of protein will maintain nitrogen balance provided that the total caloric intake is sufficient to supply heat and energy.*

Since the diabetic is restricted in carbohydrate and protein intake, it follows that the bulk of his food must necessarily be fat. In the normal diet fat furnishes less than one-third of the total calories. In the diabetic diet it is very exceptional to find the fat furnishing less than one-half of the calories. Usually the fat in the diabetic diet provides for about three-fourths of the total energy value. Occasionally we find diabetic diets in which the fat calories make up eight-ninths of the total calories.

THE HIGH FAT—LOW PROTEIN—LOW CARBOHYDRATE DIET OF NEWBURGH AND MARSH

Fat is not only the chief source of the fuel supply of the diabetic, but it is also the cause of the much dreaded ketonic acidosis. Newburgh and Marsh(5), however, dispelled the prevailing fear of the use of large amounts of fat in the diet of the diabetic. Their success with a large number of cases showed conclusively that such fear was entirely ungrounded. Woodyatt(3) suggested that if the ketogenic-antiketogenic ratio was more than 1.5, ketosis would develop. The diet of Newburgh and Marsh far exceeded this ratio. It ranged from 2.5 to 4.0, but not one patient developed ketosis. What is still more important is the fact that in those patients who came in with an acidosis short of coma, the acidosis disappeared on the high fat diet.

Newburgh and Marsh(5) began their treatment on March 1, 1918. Their diet was made up of low protein (0.66 grams per kilo of body weight), low carbohydrate and high fat. In their last report in 1923, they stated, in far from uncertain terms, that by means of this nutritional procedure they were able to maintain nitrogen equilibrium, and to produce and keep in continuance an aglycosuric state. Their method did not give rise to ketosis. On the contrary, it caused its disappearance when present at the beginning of the treatment. It did not induce a hyperlipoidemia and brought about the disappearance of such condition in those patients in whom it was present. It may be profitably mentioned here that Marsh and Weller(16) have concluded from experiments that hyperlipoidemia in diabetes is not dependent on excessive ingestion of fat. Explanation of the increase in blood fat and cholesterol must be sought in some other unusual feature of the diabetic state. It may also be said that the diabetic regime of Newburgh and Marsh(5) allows for sufficient food and energy to avoid the evils of undernutrition and to permit a degree of activity compatible with earning a livelihood. Within the limits of their observations, uncomplicated cases did not show a downward progress.

SHAFFER'S MODIFIED RATIO

The interesting announcement of Newburgh and Marsh led Shaffer to re-investigate his ketogenic-antiketogenic value, and as a result he found that one molecule of glucose could take care of two molecules of fatty acid, instead of only one. The revised ratio is the one employed by Wilder(7), of the Mayo Clinic.

$$\frac{\text{2 molecules of fatty acid}}{\text{1 molecule of glucose}} = \frac{540}{180} = \frac{3}{1}$$

In terms of grams, the ratio would be interpreted to mean that 3 grams of fatty acid require 1 gram of glucose to prevent ketosis.

THE DIABETIC DIET WITH REFERENCE TO BASAL METABOLISM

Wilder, Boothby and Beeler(13) have observed that the sugar tolerance of the diabetic patient is increased by measures which depress the basal metabolic rate. Through a series of experiments they demonstrated that when the basal metabolic rate fell, the sugar tolerance increased. When the rate rose, the sugar tolerance decreased. From these facts it is evident that starvation or undernutrition is of some benefit to the diabetic, since it lowers the rate of metabolism and increases consequently the sugar tolerance. According to Magnus-Levy(17) the diabetic morbidity and morality decreased during the late war as a result of a shortage in food.

Heat production in the body varies according to many factors — age, sex, surface area, external temperature, mechanical work, and the state of health of the individual. We generally speak of basal heat production as the heat produced in the work of the vital organs. A normal man, if well nourished, and remaining quietly at rest in bed in the morning, having been without food for fifteen hours, will produce a minimal amount of heat. This amount is called the basal heat production. For a man of average weight (70 kilograms or 156 pounds) it is about 1680 calories in 24 hours. If this man eats food, extra heat is produced, which exceeds by about 10 per cent the basal heat production. This increase amounts to 168 calories per day.

The maintenance requirement of this man, resting quietly in bed, would now be met by a daily diet yielding 1848 calories. Beyond this maintenance requirement the amount of fuel needed will depend upon the voluntary work of the muscles or the mechanical work indulged in. Thus, a business man or a clerk would require a total of 2500 calories per day, a lumberjack may require 5,000 calories, while a rider in a six-day bicycle race may need as much as 10,000 calories. The basal metabolic rate is a measure of the amount of heat produced per hour by the body in a state of rest, the individual not partaking of food or muscular exercise.

The aim of Wilder(7) in diabetic treatment is to produce diets which would lower the metabolic rate of the patient by 15 to 20 per cent below that of an individual of like surface area, age, and sex. This depression is brought about by protein-low diets calculated to provide calories 20 per cent below the estimated maintenance caloric requirement. The depression of metabolism thus obtained will balance the caloric deficiency of the diabetic food. Diets thus planned theoretically should maintain and in practice actually do maintain patients at constant weight.

WILDER'S PROCEDURE IN THE TREATMENT OF DIABETES

The actual procedure of Wilder⁽⁷⁾ is to make the food calories equal to the basal caloric requirement of a fully nourished normal person of the same height, weight, age, and sex. If the patient is permitted a sedentary occupation, an allowance is made of 20 to 30 per cent for the calories expended in work. The diet, thus figured out represents what Wilder calls a low maintenance diet. Figures for age, sex, height, and weight are used to determine surface area according to the Du Bois standards.

The formulas which Wilder makes use of in calculating diabetic diets are as follows:

$$C=0.024M+0.41P$$
$$F=4C+1.4P$$

In these equations, C stands for carbohydrate; M for the caloric requirement; P for protein (0.66 gram per kilo); F for fat.

THE FINDINGS OF LADD AND PALMER WITH REFERENCE TO HIGH FAT DIETS IN DIABETES

To sum up the situation with reference to high fat diets, we can do no better than to refer to the clinical findings of Ladd and Palmer. It is to be noted with interest that they have been able to attain a high fat-glucose ratio only where a relatively high fat diet has been introduced by gradual increase in the fat with a corresponding gradual reduction in the carbohydrate. This gradational change is logical in view of the fact that new food habits cannot be thrust suddenly either upon a healthy human being or upon a sick person. High fat is more readily tolerated when introduced in progressive amounts, and thus given it more readily brings about an increase in strength and subjective well-being. The most favorable effects in high fat dietaries are obtained by a period of underfeeding leading to desurgarization, followed by a period in which the fat is gradually increased to a high ratio.

Ladd and Palmer(10) state they have accomplished by low protein and carbohydrate intake what they could not accomplish by diets of greater caloric value regardless of the amount of fat. In other words, they have been able to clear up sugar and acetone excretion more quickly in the majority of cases without apparent injury to the patient resulting from undernutrition. After the patient has been rendered sugar free, they gradually increase the fat to a high ratio, (usually 3 to 4), with reference to the available carbohydrate. Ladd and Palmer(10) do not advise the use of high fat diets in the presence of an already severe ketonuria. On this point, however, Marsh and Newburgh(5) seem to differ.

Ladd and Palmer(10) compute the glucose-fat (antiketogenic-ketogenic) ratio from the pre-formed carbohydrate in the food and that derived from protein, and from the pre-formed fat. They find that the ratio is 4:1, and that it is the same for both diabetic and normal subjects.

$$\frac{F}{G}=\frac{\text{Fat}}{58\%\ \text{Protein}+\text{Carbohydrate}}$$

It is to be observed that Ladd and Palmer(10) express their ratio in terms of fat and glucose, instead of fatty acid and glucose. An example will illustrate the simplicity of this formula in calculating the fat-glucose ratio:

Mr. C. M. is on a diet consisting of 70 grams of protein, 250 grams of fat, and 30 grams of carbohydrate. His antiketogenic ratio, F/G, would be calculated by substitution in the above formula.

$$\frac{250}{(70\times 0.58)+30}=\frac{250}{70.6}=\frac{3.5}{1}$$

Since the ratio is 3.5:1 and is not above 4:1, the diet of Mr. C. M. will not give rise to the excretion of acetone and diacetic acid in the urine.

It will be noticed that Ladd and Palmer(10) take no account of the antiketogenic glycerol derived from fat or of the ketogenic derivatives of protein, the fatty acids, formed therefrom in the process of intermediate metabolism. They have purposely removed these items from their consideration, since they assert that there is a woeful lack of data as to the part fat through its glycerol may take in anti-ketogenesis, and as to the part protein through the formation of fatty acid may take in ketogenesis. The ketogenic factor for protein is based upon one analysis of ox muscle by Osborn(18). The antiketogenic factor for fat is based upon the still quite debatable question of whether the glycerol of the fatty acid is metabolized in the same manner as glucose. Furthermore, we do not subject to actual analysis the foods that enter into a particular dietary regime, and we cannot escape the fact that errors creep in through the use of tables of food values. In view of lack of data and in view of unavoidable errors in calculation, Ladd and Palmer(10) do not feel justified in putting forth an exact formula based upon factors which themselves are more or less known or more or less exact.

THE RELATION OF FAT-GLUCOSE RATIO TO THE ADEQUACY OF THE DIET

We cannot pass the subject of high fat diets without referring to the animal experiments of Frank(19) and of Osborne and Mendel(20), for they teach a valuable lesson to the clinician. Frank maintained rats on a diet of 15 per cent protein, 80 per cent fat, 2.7 per cent milk sugar, and 2.7 per cent ash. Osborne and Mendel observed normal growth and maintenance on diets highly deficient or entirely lacking in pre-formed carbohydrate and containing as much as 75 per cent fat. Their animals prospered biologically on fat-glucose ratios of 4 to 1, while some of them kept doing well on a ratio as high as 7 to 1.

The animal experiments of these investigators were carefully controlled. The diets were adequate with respect to vitamins and to inorganic elements. It is not to be forgotten that there are two types of food fats: superior fats and inferior fats. Superior fats are those in which the fat-soluble or fat-associated vitamins occur. Among them may be mentioned butter fat, cream, liver fat, and cod liver oil. Inferior fats do not carry any vitamins or a very small amount. Among them may be mentioned lard, bacon, and vegetable oils. An examination of the menus of Newburgh and Marsh(5) and others, who have succeeded with high fat diets, shows that the source of fat supply came largely from butter and cream. *The extent to which the fat-glucose ratio can climb is no doubt dependent upon the nutritional value of the fats employed, as well as upon the completeness of the diet.* The writer has observed failures among clinicians who have changed abruptly from a usual diet to a high fat diet, or who, not taking cognizance of the fact that diet must be adequate in fat soluble vitamins, have made up a great bulk of their fat by the use of olive oil, bacon and fat meat products. Since intarvin, of which we shall soon speak, is an artificial fat without any vitamin content, it can never be used to supplement entirely the natural fats. It may, however, be employed to enforce the fuel value of a diet inadequate in calories, but already supplied liberally with butter and cream.

THE PREPARATION OF A FAT FROM AN ARTIFICIAL FATTY ACID CONTAINING AN UNEVEN NUMBER OF CARBON ATOMS

Fat, we have already pointed out, is not only the chief source of fuel supply to the diabetic, but it is also the causal factor in ketonic acidosis. As we have seen before, all natural fats contain fatty acids with an even number of carbon atoms. These fatty acids fragment in the body, finally forming an acid of 4 carbon atoms, butyric acid, which as a result of insufficient carbohydrate, becomes the mother substance of two other acids of four carbon atoms, beta-hydroxy butyric acid and diacetic acid. Fatty acids undergo a series of fragmentations, at each step of which two carbon atoms are broken off. A fatty acid with an uneven number of carbon atoms could not, therefore, produce a fragment with an even number of carbon atoms, like beta-hydroxybutyric acid or diacetic acid. The fatty acids in our food fat all contain an even number of carbon atoms, and all form ketone bodies during carbohydrate shortage. With the view of preparing an artificial fat that would not bring about ketosis, Max Kahn(21) synthesized an odd carbon atom fat, which he named intarvin. Chemically it is a fat formed by the interaction of glycerol and margaric acid ($C_{16}H_{33}COOH$ or $C_{17}H_{34}O_2$).

Kahn(21) maintains that intarvin is not changed to glucose in the body and that it does not produce ketosis. It allays the sense of hunger of the diabetic. It nourishes him so that he gains weight. It strengthens him so that he does not offer the usual complaint of the diabetic, which is a feeling of weakness and fatigue. Kahn(21) asserts that many more patients can be treated with intarvin, since it can be given to those upon whom insulin has no effect, or to those who refuse its continual subcutaneous administration.

A comparison of the fragmentation of a fatty acid from a natural fat and of the fatty acid of the artificial fat will prove of interest, for it will present graphically the reason why the utilization of intarvin takes place in the body without the production of beta-hydroxybutric acid, diacetic acid and acetone.

From the chart we see that the final fragmentation products of the odd-carbon fatty acid in intarvin are the three-carbon compounds, lactic acid and pyruvic acid.

THE PHYSIOLOGICAL PROPERTIES OF INTARVIN

The physiologic properties of intarvin have been investigated by a number of workers. Heft, Kahn and Gies(22) find that it is non-toxic. According to Kahn(21), Gies, Baehr(23), Lundin(24) and Modern(25), it is nutritious and substitutes well for natural fats. The absorption of intarvin is very good, varying between 90 and 95 per cent. Hubbard and Wright(26), Lundin(24) and Modern(25) have substantiated the claim of Kahn(21) that it is catabolized without the production of acetone bodies.

OPINION AS TO THE VALUE OF INTARVIN DIVIDED

Opinion as to the value of intarvin in diabetic treatment seems to be divided. Severinghaus(27)

FRAGMENTATION OF FATTY ACID

Stearic Acid ($C_{17}H_{35}COOH$)	Margaric Acid ($C_{16}H_{33}COOH$)
fatty acid of 18 carbon atoms	fatty acid of 17 carbon atoms.
-2C	-2C
fatty acid of 16 carbon atoms	fatty acid of 15 carbon atoms
-2C	-2C
fatty acid of 14 carbon atoms	fatty acid of 13 carbon atoms
-2C	-2C
fatty acid of 12 carbon atoms	fatty acid of 11 carbon atoms
-2C	-2C
fatty acid of 10 carbon atoms	fatty acid of 9 carbon atoms
-2C	-2C
fatty acid of 8 carbon atoms	fatty acid of 7 carbon atoms
-2C	-2C
fatty acid of 6 carbon atoms	fatty acid of 5 carbon atoms
-2C	-2C
fatty acid of 4 carbon atoms (butyric acid, $CH_3CH_2CH_2COOH$)	fatty acid of 3 carbon atoms (propionic acid, CH_3CH_2COOH)
↓	↓
beta-hydroxy butyric acid $CH_3CH(OH)CH_2COOH$ 4 carbon atoms	alpha-hydroxy-propionic acid $CH_3CH(OH)COOH$ 3 carbon atoms
↓	↓
diacetic acid CH_3COCH_2COOH 4 carbon atoms	pyruvic acid $CH_3COCOOH$ 3 carbon atoms

claims that glyceryl margarate appears to have little or no ketolytic value aside from its glycerol content. Lyon, Robson and White⁽²⁸⁾ conclude that intarvin cannot be used indiscriminately to build up diets to maintenance level without the fear of ketosis. Stern⁽²⁹⁾ finds in his clinical tests that it did not prevent aggravation of the disease and that in every case there was an increase in the ketone compounds of the blood. On the other hand many investigators—Desgrez, Bierry and Rathery⁽³⁰⁾, Keefer, Perlzweig and McCann⁽³¹⁾, Lundin⁽²⁴⁾ and Modern⁽²⁵⁾ bring forward evidence in favor of its non-ketogenic properties. Lundin⁽²⁴⁾ as well as Modern⁽²⁵⁾ find that the odd-carbon fatty acid fat in its catabolism in the human body forms no acetone. They claim, however, that intarvin requires carbohydrate for its complete utilization just as natural fat does. According to Lundin⁽²⁴⁾, an acidosis produced by a diet high in natural fat and low in carbohydrate in a normal man does not disappear upon replacing the natural fat by odd carbon fat, although the acetone bodies decrease. Instead of the acidosis caused by natural fat from derivatives of butyric acid (beta-hydroxybutyric acid and diacetric acid), another type of acidosis is formed by the derivatives of propionic acid (alpha-hydroxypropionic acid or lactic acid, and cyruvic acid). Modern⁽²⁵⁾ has substantiated the conclusion of Lundin⁽²⁴⁾ with reference to the fact that incomplete combustion of odd-carbon fatty acid gives rise to an acidosis not due to beta-hydroxybutyric acid and diacetic acid, but to other organic acids.

Allen(32) condemns the use of artificial foodstuffs, including intarvin, in order to provide weight and strength for the diabetic as ever fruitless. On the other hand, Joslin(33) favors the use of intarvin and disagrees with many clinicians on the point that it is not very palatable to the patient. In his book he says: "The fat does not cause nausea nor is it disagreeable. Ninety-five per cent of the ingested fat was utilized according to analyses of the feces. Through the courtesy of Professor McKee, I have been able to use this synthetic fat at the New England Deaconess Hospital. I can confirm the statements above quoted that it is not disagreeable and is readily eaten."

PLAN TO BE FOLLOWED IN FEEDING INTARVIN

In feeding intarvin the following plan has been followed by Kahn(21). The diet of the patient is determined according to the conventional method. The amount of protein, fat and carbohydrate given is such that no glucose and acetone bodies are excreted in the urine. If after calculating the diet of natural fat, carbohydrate and protein, the caloric value found is too small for maintenance, a sufficient weight of artificial fat (intarvin) is added to bring up the caloric intake to a good maintenance diet. Intarvin may also be given simultaneously with insulin. If a patient without insulin can only take 800 calories and with insulin 1700 calories, intarvin may be added to bring up the caloric intake to 2000, 2250 or 2500 calories. If, however, a patient refuses insulin, a quantity of intarvin may be added at once in amounts sufficient to make the tolerance diet a maintenance diet.

Intarvin may be eaten in any form. It may, like butter, be spread on bread. It may be worked up into vegetable salads. It may be mixed with cheese and cream. It may be taken dissolved in hot black coffee or tea. If the physician does not impress the patient with a psychologic distaste, the patient will not observe any disagreeable flavor or odor. Exposure of intarvin in a plate to the direct rays of the sun takes away its flavor, slight as it is.

THE LAMENTABLE DEATH OF MAX KAHN

We cannot pass the subject of intarvin without mentioning in grief and sorrow the death of Max Kahn. While this paper was in preparation the writer, who was an intimate friend of his and a fellow-worker at the College of Physicians and Surgeons at Columbia University, received word of his sudden death on the eighth of April. He died on the ward of the hospital while in the act of making his daily rounds. The cause of death is given as heart disease. He was thirty-nine years of age.

We have in the last two papers focused our attention upon anti-ketogenic diets in diabetes. We shall turn our thoughts next month to a wonderful application of ketogenic diets in the treatment of epilepsy.

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COAGULATION OF THE BLOOD

One of the most important tests applied to the blood by the practicing physician is the determination of the time necessary for coagulation. Such tests are important before all operative procedures involving the cutting of blood vessels, and also in women before the birth of a child. The method of making such determinations varies from simple observation of a drop of blood on a glass slide to the use of complicated and intricate devices that have been elaborated particularly for the purpose. Dr. O. S. Gibbs of the department of pharmacology in the University of Edinburgh recently developed a method involving the use of a broken loop of platinum wire, the coagulation time being that in which a small drop of blood placed on the loop ceases to move when the loop is rotated. He has now extended his observations with this device, comparing its use with that of other apparatus for the purpose. In all devices in which contact of the blood with the instrument is reduced to a minimum, Dr. Gibbs finds, not only the area of contact, but also the nature of the material coming into contact with the blood causes a variation in the end-point of coagulation. Comparisons were made in the use of loops of wire made of tungsten, platinum, nickel and copper plated platinum. It was found that the slightest tarnishing tends to shorten the coagulation time, and that coating the wire with collodion brings the clotting time back to normal. Again, temperature and the humidity of the room seem to have a definite effect. Furthermore, slight traces of such volatile bodies as ether, chloroform, xylene or volatile oils may have a marked delaying effect on the clotting time. It becomes, of course, possible to deduct for the variations in the method when a given test is used over a long period of time. Dr. Gibbs concludes that the time of coagulation of a drop of human blood obtained by pricking varies with the area of contact with foreign material, with the nature of the material and with the temperature. When blood is obtained by any other method, as by the use of a cannula, or by pricking an ear vein, the coagulation time is inconstant. It is his belief that such methods give no certain indication of the degree to which hemorrhage is prevented by hemostatic remedies in the body when small blood vessels are severed, since the effect of the tissue products on clotting is eliminated to a varying extent by the methods employed. As will be readily perceived, this work is important not only for its direct practical application to human surgery, but also as a guide in the estimation of the value of various alleged hemostatic substances.—Jour. A. M. A., May 23, 1925.

It is a fact also that we are seeing more cases of benign tumors of the breast than ever before, and because of the instruction of the laity regarding these lesions, and their significance. Formerly the percentage of carcinoma of the breast was given as 80 per cent to 90 per cent of all breast tumors. This is not true in the more recent statistics. Bloodgood gives the recent rise in percentage of benign breast tumors from 32 per cent to 59 per cent. Others give 30 per cent to 35 per cent as frequence of benign lesions.—Dr. James W. Gibbon (*South. Med. and Surg.*)

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THE TENTH ANNIVERSARY OF THE JOURNAL

The first number of *The Nebraska State Medical Journal* appeared in July, 1916, having been created by the House of Delegates, May 24, of the same year, to fill what was thought to be real need for a medical journal that should properly present the ideals of organized medicine in Nebraska.

The tenth anniversary of the founding of the Journal seems to the publication board and to the editor a matter of such importance as to justify special comment and it seems fitting that the event should be celebrated by a special number devoted to an evaluation of the Journal and a resume of its history.

The events leading up to the establishment of the Journal date back to 1907 when the present editor, then president of the State association, made a special study of state medical journalism and of the 16 state medical journals then existing and in his presidential address in Omaha, May 7-9, 1907, said, in part:

> "A great organization like ours needs a means of intercommunication, an official organ or journal. Organizations of all other kinds have recognized this need and have acted upon it. Medical organizations have been slow to adopt the official organ or journal as a method of organization until recently, but at the present time 16 state associations own and control state journals. Correspondence with the editors of the sixteen state journals, elicited the statements that the state journals are well received by the profession, that they foster medical organization and the spirit of fraternity and they all agree that no single thing has such a decidedly stimulating effect upon organization as the state journal. It seems reasonable that there is no other influence with such a binding community of interest, that we could possibly bring to bear upon the profession of the state, as the regular publication of a state journal, owned by, and devoted to the whole interest of, the profession of Nebraska. This association must look forward to the establishment in the near future of an association-owned and -conducted state journal."

For some years an existing publication under at least three different managements had published the proceedings of the Nebraska State Medical association by contract, with varying satisfaction to the profession, depending on the directing head. At the 1913 annual meeting a committee consisting of Dr. B. F. Bailey, Dr. W. O. Bridges and the present editor, as chairman, was appointed to investigate the contract with the journal then publishing the proceedings. The report given before the 1914 annual meeting resulted in the same personnel being appointed to a committee for two years with instructions to take steps to create a Nebraska State Medical Journal at the 1916 meeting. The House of Delegates at the 1916 meeting having voted to adopt the recommendations of the committee to establish a state association journal and provided in the By-Laws for a Committee on Journal and Publication, the same members of the two committees mentioned above were elected to the newly created committee and have continued as such committee to the present time.

The first editor was Dr. Irving S. Cutter, then, dean of the Nebraska University College of Medicine, now, dean of Northwestern University Medical School, Chicago, who had editorial supervision from July, 1916, to May, 1918, inclusive. With the idea of centralizing the activities of the association, the late Dr. J. M. Aikin, then secretary of the state association, was then appointed managing editor and continued in this position until his death November 18, 1920. As chairman of the publication board, the present editor then took charge for the publication board and carried on the work until the next annual meeting in Lincoln, in May, 1921, when he was duly appointed editor.

DR. IRVING S. CUTTER, the First Editor.

During the first several years the average number of pages per issue was thirty. This was gradually increased to 36 pages and for the past several years the average number of pages has been slightly above forty or about 500 pages per year.

The interest of the profession in the Journal as a medium of scientific expression has grown within ten years coincident with the scientific growth of the profession in Nebraska. It must be recalled that the Nebraska profession has developed wonderfully in scientific attainment within very recent years. The Journal has grown with the profession, or, rather, the growth of professional attainment in Nebraska has made the present Journal possible.

THE LATE DR. J. M. AIKIN, the Second Editor.

The Journal is the exponent of the profession

DR. F. A. LONG, the Present Editor.

and is probably the most cohesive force in medical organization in Nebraska today.

It may be said of the Committee on Journal and Publication, in this connection, that Dr. B. F. Bailey is the financial authority, Dr. W. O. Bridges furnishes the ideals of medical journalism and the editor is but the directing head.

THE NEBRASKA STATE MEDICAL JOURNAL

It is a far cry back to the *Omaha Clinic,* the first medical journal published in Nebraska, yet its stimulus reached into the production of the *Western Medical Review,* which journal, for a time, served a very useful purpose,—indeed, this publication, under the able editorship of Doctor George H. Simmons, attracted so much attention, that, a vacancy occurring because of the death of Doctor John B. Hamilton, editor of the Journal of the American Medical Association, Doctor Simmons was elected his successor, and it is conceded by everyone that the high standing and business success of the American Medical Association's Journal, today, is mainly due to the former editor of the Nebraska publication. However, after the departure of Doctor Simmons for his wider field in Chicago, it soon became evident that it was to the interest of the medical profession of Nebraska to fall in line with other states, and publish its own Journal, and it was created by the House of Delegates, at the annual meeting in the Fontenelle Hotel, in May, 1916, and the first number appeared in July, 1916. From year to year, improvements in the make-up and character of the papers published, have been in line with the progress of the profession throughout the world, and through the Journal, the two medical schools in Omaha have in a large degree contributed to the scientific and practical growth of the profession in the state.

The editor, one of our best-known and -liked physicians, has shown rare judgment and tact in the selection of papers and editorial comments by different members of the society. His own editorials have been progressive, yet conservative. There has been absolute fairness in the conduct of the publication. The Journal is mailed so as to be received on the first day of the month; no criticisms can be made as to the character of the advertisements, and on the whole the publication committee, consisting of Drs. F. A. Long, W. O. Bridges, and B. F. Bailey, together with Dr. R. B. Adams, the business manager, should receive the thankful appreciation of the profession of the state.

—Jno. E. Summers.

AN EVALUATION OF THE JOURNAL

A medical journal is an index of the character of the constituency which it serves. A good state medical journal means a live, progressive fraternity back of it. A poor journal means a backward profession, without cohesion. The purpose of our Journal is to provide a medium for the publication of the papers read at each annual session of the Nebraska State Medical Association. In addition, some valuable literature is acquired from local and district societies. The Journal also acquaints the profession with all that organized medicine is trying to do for the betterment of the profession and the welfare of the people. It contains information and instruction in which all members are interested.

Other journals can never take the place of our own *Nebraska State Medical Journal.* Each journal has its own sphere of action. A state medical journal published for its own members has no real competition. Nebraska is a prosperous agricultural state with ample resources, sufficient to make it possible to maintain a profession which has the wealth, the numbers, and the education to publish a journal that is on a par with any in the United States.

Those of us who have been active in the association a long time can look back over different periods when the life or health of our Journal seemed to rise and fall. The last Journal has had a long period of increasing influence. This has been due to two factors: One, the determination of the Nebraska State Medical Association to own and publish its own journal on the highest ethical place; the other factor has been the service of an editor who has had a sufficient number of years to carry out a constructive program. He has succeeded because he has given it his personal attention and has had the ability and the ripened experience of years. His mental attitude represents the cross-section of the great majority of the members who are contributing to the support of the Journal.

In the beginning the new Journal was made a modern publication, according to the best ideals of an enlightened profession. It may be tested by the strictest ethical, scientific, and practical tests — by none of them will it be found wanting. Credit for the success of the Nebraska State Journal must be given to those who had foresight to plan for the untrammeled management, for the sustained policy of the Committee on Journal and Publication, and last, and not least, to the constructive work of its loyal and efficient editor.

—E. W. Rowe.

THE FIFTY-EIGHTH ANNUAL CONVENTION AT OMAHA

The annual meeting of the Nebraska State Medical Association at Omaha, May 11-13, has passed into history as having furnished one of the most appealing programs ever presented to the association. By early afternoon of the first day the meeting room was crowded and the attendance continued good throughout the sessions, demonstrating conclusively, sustained interest in the program. Much favorable comment was heard about the hotel lobby.

With two exceptions, all the essayists were present. Dr. Daniel Fiske Jones of the Massachusetts General Hospital, as guest of honor, spoke on "Some Problems in Modern Surgery", and Dr. W. C. Alvarez of the Mayo Clinic, guest of honor, spoke on "Diagnosis of Gastro-Intestinal Diseases from Good History". Dr. Max Emmert, Omaha, gave the Oration on Surgery, in which he distinguished the butcher, the operator and the surgeon, recognized the development of surgical centers in the smaller places as being in the line of the onward march of progress and plead for higher ideals in surgery, and for a special requirement of five years of general practice followed by one year of intensive training in a recognized clinic before being allowed to practice major surgery. Dr. George W. Covey, Lincoln, gave the Oration on Medicine, using as his subject "Protozoan Diseases in Nebraska", an almost, if not, wholly, heretofore, untouched subject, which he handled in a very able manner and to the intense interest of his audience. Interest in the program was accentuated by the high class papers presented—not a mediocre paper appearing on the program. Dry Clinics, presented by 14 members of the Omaha profession, occupied the second forenoon and called forth unusual interest. Dr. A. D. Dunn spoke on periodic health examinations and gave a clinical demonstration.

Considerable constructive work was accomplished by the House of Delegates, chief of which, perhaps, is the financial provision made for the functioning of the Publicity Committee. Dr. A. D. Dunn, supplementing the report of the Nebraska delegates to the A. M. A., plead for greater interest of delegates in their duties, plead that constituent bodies pick their best and most interested men for delegates and then keep them in office for a term of years, instead of passing the position around for the sake of courtesy. Dr. J. V. Beghtol, Hastings, one of the "war horses" of the Nebraska profession, acted as chairman *pro tem* of the House in a very able manner.

The Omaha Chamber of Commerce tendered a Smoker to the visiting profession, featuring the event by high class vaudeville and a Dutch luncheon.

The Banquet in the Fontenelle, the outstanding social event, was attended by 362 physicians and wives. A distinctly high class musical program featuring "The Garden of Youth" was given by the Omaha Community Playhouse association. President H. J. Lehnhoff, delivered the official address weaving his theme around some of the historical characters in medicine of all ages. It was a masterful address and was listened to with rapt attention by all present.

Dr. Harry E. Potter, Fairbury, councilor for the Seventh District, was elected president for 1927. Dr. Potter is one of the outstanding men in the profession of Nebraska.

The registered attendance was 371. The paid-up membership to date of meeting was 1190. The next annual meeting will be held at Lincoln.

The local committee of arrangements composed of the younger men of the Omaha profession were on vigilant duty at all times, thereby adding much to the comfort and convenience of the visiting profession.

The secretary-treasurer had everything pertaining to the business of the association well in hand and demonstrated that experience and practice count for a great deal.

The Nebraska Association of Medical Women met over a banquet at the Athletic Club, Tuesday evening, May 11th, and carried out a well arranged program of scientific papers. Dr. May Flanagan, Green Gables, was elected president.

The Nebraska Academy of Ophthalmology and Otolaryngology held a meeting and participated in a banquet at the Athletic Club, May 10th.

The Women's Auxiliary, Nebraska State Medical Association, had a very successful meeting and a very enjoyable time at this, their first annual meeting. Much good in a social way and in pushing welfare work will come from this organization. Mrs. Clarence Rubendall, Omaha, was elected president.

THE DALLAS CONVENTION

The first meeting of the American Medical Association to be held in the Great Southwest is a matter of history. It was a foregone conclusion that the lure of the inland empire, Texas, would attract a great many physicians who might not be tempted to attend a meeting at a nearer or more centrally located place. The attendance —4179 registered—justified the location of the meeting at Dallas, the metropolis of the Southwest.

There was something different about this meeting. The sessions were staged at the Texas State Fair grounds and buildings, a quite wonderful setting. The buildings adapted themselves quite admirably to the purpose for which they were used during the meeting. Southern hospitality pervaded everything. The barbecue served to the 8000 doctors, wives and members of their families, the Mexican luncheon, the smokers and the President's reception—all were unique.

The spirit of scientific endeavor pervaded all the section meetings, perhaps, to a greater degree than ever before.

The temperature was comfortable throughout the meeting and no doubt added to the attendance and attention at the various sections.

The House of Delegates had a busy time and much constructive work was accomplished. We little appreciate the vast amount of work done by the House of Delegates, or the responsibilities incurred and the sacrifices made by those members whom we honor by election to the House to represent Organized Medicine.

The presidency for the first time comes to the Missouri Valley in the selection, as president-elect of Dr. Jabez N. Jackson, of Kansas City. No better selection out of the Middle West could have been made.

The next meeting will be held at Washington, D. C.

EDITORIAL PARAGRAPHS ABOUT THE DALLAS MEETING A. M. A.

Real Southern hospitality was in evidence all over Dallas.

"Digitalis is never indicated in exophthalmic goiter."—Bartlett.

Cancer of the Negro skin is very rare according to Harold Fox.

Carlysle said one attack of pneumonia predisposes to another.

It takes forty tons of paper per week to publish the Journal A. M. A.

It seems to the writer that there is too much ado about medicinal whiskey.

"Existence of goiter substernal, is a clear cut indication for removal."—Lahay.

Braasch says acriflavine has not held up its reputation as an urinary antiseptic.

"The cautery knife offers more in malignancies than anything else."—Percy.

Walt of Little Rock argues for every day care, instead of periodic care, of patients.

Dr. J. P. Lord, Omaha, was elected chairman of the Orthopedic section at the Dallas meeting.

Iodized oil in larynx and lung for diagnostic purposes was demonstrated by slides by Iglauer.

One speaker stressed the fact that hemoglobin below 70 is always suspicious of pernicious anemia.

It even rains in Texas—three inches fell in a twenty-four hour period during the Dallas meeting.

Erysipeloid among fish handlers has been demonstrated to be the same disease as swine erysipelas.

Close observation without a fixed rule is the better way to handle goiter patients, said Hertzler and Crile.

Mrs. A. F. Jonas, Omaha, was elected one of the vice presidents of the Women's Auxiliary of the A. M. A.

Lavage of the ureter in pyelonephritis received much commendation from Braasch, Hunter and Goldstein.

Dr. M. J. Wohl's paper on avitiminosis in diabetes was well received, and provoked fruitful discussion.

One-third of the profession of Falls City, Nebr., five doctors, attended the Dallas meeting —a real record.

One man asked what does a normal chest or a normal lung look like? What is our standard for comparison?

Tropical dermatoses are very numerous and very varied according to Castellani of New Orleans.

The Women's Auxiliary to the A. M. A. was much in evidence and the Nebraska delegates received marked attention.

How many Nebraska physicians know that an Edmonton, Canada, physician has isolated the active principle of parathyroid?

She who knows says the doctors' wives are taking an increasingly greater interest in welfare and public health problems.

Foerster of Milwaukee traced sporotrichosis in one case to the Japanese barberry bush on which the sporothrix fungus develops.

Mercurochrome intravenously was featured by H. H. Young, in septicemia and even in anthrax. Five mg per kilo of a 1% solution.

To properly inaugurate the periodic health examination movement it is suggested that the doctors and their families be first examined.

Matas and Barney Brooks, each reported a case of ligation of the abdominal aorta for aneurysm, both of which patients lived over a year.

Nebraska is well represented in the House of Delegates of the A. M. A. Dr. A. D. Dunn has in a few years become one of the recognized leaders of the House.

The "native Texans" were in evidence. State and racial pride are excellent things. We congratulate the Texans.

Dallas aspires to be a young New York—and she is. The city has a population of 250,000 and is the metropolis of the Southwest.

Some one was quoted as saying that "exophthalmic goiter patients will temporarily improve with treatment, without treatment and in spite of treatment."

Dr. L. M. Francis, Buffalo, N. Y., fell dead in front of the exhibit building on the third day of the meeting. He was an ophthalmologist and a prominent member from New York State.

Texas people are a church building and church going people. Whether their religion is deeper rooted than ours or is merely a formalism is not known to the writer, but the fact stated above remains.

Bohart said a series of radiographs of the spines of apparently healthy showed that 8 to 10% were anomalous; therefore, showing that variations are not always a cause of symptoms. What then are the limits of the normal?

Stories told by men high in authority in the A. M. A., at banquet and smoker, were most elevating(?). Leaders in a great and noble profession, it might be supposed it were beneath their dignity to relate such smut in the belief that it were funny. "How have the mighty fallen!"

Drs. F. B. Young and A. L. Cooper, Scottsbluff, Nebr., were given honorable mention by the Committee on Awards, Scientific Exhibit, for original investigations in fossil and prehistoric pathologic conditions. Their exhibit attracted much attention.

The Mexican dinner tendered to the visiting doctors was also a real event. The principal features of the menu were *chili con carne* and *hot tomales*. Both disappeared much as spring chicken and gravy do in the average household. And they were real good.

Wanted: A health officer in charge of the meeting places at the annual sessions. The ventilation is in most places abominable. And these are the meetings of the great American medical profession which stands for better health and more of it.

At least five groups of Nebraska doctors motored to Dallas. They were Drs. Roy Fouts and S. G. Reed, Omaha; Drs. A. N. Howley, A. C. Barry, G. E. Charlton and E. L. Brush, Norfolk; Drs. C. L. Hustead, H. R. Minor and their wives, Falls City; Dr. and Mrs. F. A. Long, Madison and Dr. and Mrs. C. J. Miller, Ord.

The barbecue tendered the visiting doctors by Dr. John H. Dean of Dallas, a Texas rancher, was a great success and was probably considered the outstanding event by two-thirds of the visitors who had never witnessed or participated in such an event. The barbecued veal was so tempting that in some instances the appetite exceeded the digestive possibilities so that the internal economy rebelled several hours after the feast.

THE MAKING OF A STATE MEDICAL JOURNAL

Before he had any experience in editorial work the writer had the impression that an editor's work on a magazine such as The Nebraska State Medical Journal was mere pastime. No doubt there are many persons inexperienced in work of the character required in the making of such a journal and to them it may be of some interest to relate about what the monthly routine of your editor is.

The schedule is about as follows:

Procuring copy.

Correcting copy.

Ordering cuts (if any).

Correcting galley proofs.

Mailing galley proofs to authors.

Procuring editorials on special subjects.

Writing editorials, abstracts of society meetings, obituaries, "Human Interest Tales".

Making up layout for forthcoming Journal.

Correcting page proofs.

Writing about a half dozen letters daily in answer to all sorts of queries, requests, etc., and several on the editor's initiative on matters pertaining to the Journal.

Few would believe at first thought that it takes the greater part of the time and energy of a person for about one week each month to get into presentable form the material that fills your Journal; but such is the case.

The annual meeting produces some thirty papers with the discussions thereto each year. In addition, quite a number of papers are offered for publication. This part is easy for the editor; but when material begins to get scarce it is the duty of the editor to foresee the need several months in advance and to fortify himself against a dearth of material by soliciting papers, usually from those whom he has spotted as being dependable, in case of emergency.

Correcting a well composed and well written paper is a real pleasure. Not all papers come under this classification, however. There are physicians, specialists, as well as men in general practice, whose diction is very faulty. There are those who have no proper conception of the construction of a sentence, who have no regard for punctuation, and who are very bad spellers. There are also those who insist on writing on every line instead of on every other line—double spacing. Double spacing is necessary in order that notes and corrections may be made where needed. Some time ago a paper had to be rejected, because it seemed impossible to reconstruct it to make proper sense and the author on being asked to rewrite it, failed to do so.

More material is being offered for publication the last one to two years and hereafter the editor will feel freer to decline manuscripts that are badly written or that lack in presentation of what seems worthwhile points.

Depending on what is to be illustrated, the cuts are either half-tones or etchings. In ordering cuts the size desired must be stated on the order. The Journal furnishes three cuts to illustrate the text to each article, if in the judgment of the editor this is needed. Additional cuts must be paid for by the author.

The galley proofs are received at the editor's office in duplicate; one copy is mailed to the author for his correction and the proof is also checked up by the editor.

The unsigned editorials are the product of the editor. In addition he procures signed editorials either by solicitation which means correspondence, or, as occasionally happens, editorials are offered. It is also the duty of the editor to procure or to write abstracts of society meetings, to write obituaries and Human Interest Tales. To make the latter items dependable the names of persons mentioned, if not personally known to the editor, are checked up by the aid of the American Medical Directory. A press clipping service is employed to get the source material for the Tales.

Just before the 20th of each month the "layout" for the forthcoming Journal is made up. This means collecting the material now in galleys for the original department and estimating the probable number of pages the material will make; gathering the material for the editorial department and estimating the space to be filled by the material in hand, and giving a schedule of directions to the printer as to location of the material.

Last, but not least, is the selection and clipping of fillers for both reading and advertising pages. These consist of helpful scientific, medical economic and modestly humorous material.

Finally the page proofs are received from the printer and the editor again goes over these proofs, corrects where needed and possibly gives directions for transposition or rearrangement of some items or articles.

NEBRASKA ALPHA OMEGA ALPHA HONORARY FRATERNITY

The Nebraska Alpha Chapter of Alpha Omega Alpha announces the following elections to membership from the Class of 1926, University of Nebraska College of Medicine, Omaha, Nebraska:

Albertson, Miriam	Carleton, Nebr.
Herrmann, Walter W.	Lincoln, Nebr.
Jefferson, Roland A.	Omaha, Nebr.
Koch, Lewis A.	Cozad, Nebr.
Lucic, L. Hugo	Valparaiso, Chile
Overholt, Richard H.	Peru, Nebr.
Pillsbury, Donald M.	Omaha, Nebr.
Robertson, George E.	Omaha, Nebr.
Shramek, Charles J.	Omaha, Nebr.
Thornell, Joseph B.	Council Bluffs, Ia.
Wegner, Walter R.	Loveland, Colo.
Weiss, Victor J.	Eustis, Nebr.

Alpha Omega Alpha is an honorary fraternity, chapters of which have been established in the twenty-six leading medical schools of the United States. The chapter at the University of Nebraska was established in 1914. Election to membership is based upon the scholarship record throughout the four years of the medical course.

Miss Miriam Albertson is the first woman graduate at Nebraska to receive the honor of election to Alpha Omega Alpha. She plans to spend the required hospital intern year in Chester Hospital, Chester, Pennsylvania. Mr. Walter W. Herrmann has been assistant in the Department of Experimental Medicine during the past two years and will begin his internship at the University of Nebraska Hospital in June. Mr. Roland A. Jefferson has been an Assistant in the Department of Anatomy and will complete work for his degree of Master of Arts this summer. He will intern at the University of Nebraska Hospital. Mr. Lewis A. Koch and Mr. George A. Robertson have been serving as student interns at the University of Nebraska Hospital and will continue their internships after graduation. Mr. L. Hugo Lucic has been pursuing special studies of the eye under Dr. Sanford Gifford and expects to continue this work at the Methodist Hospital after graduation. Mr. Richard H. Overholt has been an Assistant in Clinical Pathology and has received an appointment as intern in the University of Pennsylvania Hospital, Philadelphia. Mr. Donald M. Pillsbury has been an Assistant in the Department of Anatomy. He will intern at the University of Nebraska Hospital. Mr. Charles J. Shramek has accepted an internship at St. Luke's Hospital, Jacksonville, Florida. Mr. Joseph B. Thornell has been chemist at the Council Bluffs Water Works during his four year study of Medicine and will intern at the Jennie Edmundson Hospital in Council Bluffs, Iowa. Mr. Walter R. Wegner has spent two years as assistant in Clinical Pathology and goes to the Long Island College Hospital, Brooklyn, New York, for his internship. Mr. Victor J. Weiss has been proctor of the men's dormitory on the Medical Campus and will intern at the Kansas City General Hospital, Kansas City, Missouri.

RESOLUTIONS OF THE NEBRASKA TUBERCULOSIS ASSOCIATION

Whereas: One of the primary functions of the National Tuberculosis Association is cooperation with the legally constituted health authoratives to the extent of aiding, if possible, largely through educational methods, in convincing the public generally of the importance and necessity of accurate and reliable vital statistics.

And Whereas: An intelligent understanding of the situation relative to tuberculosis and a comprehensive view point concerning any plan directed towards its control must be based upon reliable statistics and rather complete data.

And Whereas: Although tuberculosis is a reportable disease under the laws of the state of Nebraska, it is more or less a matter of general knowledge and is definitely shown by the published report of vital statistics by the state Department of Health for 1925, that the reporting of cases of tuberculosis is generally neglected and that there exists a wide spread failure to appreciate the advisability, importance and necessity for strict observance of the law in this respect.

Therefore Be It Resolved by the Nebraska Tuberculosis Association that by and with the cooperation, consent and approval of Dr. W. H. Wilson, Chief of the Bureau of Health, this Association shall devise a plan or program which shall be put into effect for the purpose of accomplishing an improvement in the character of the vital statistics relating to tuberculosis in the state of Nebraska. And be it further resolved that in addition to being made a matter of record on the minutes of this Association a copy of these resolutions shall be forwarded to Dr. W. H. Wilson, Chief of the Bureau of Health and a copy to The Nebraska State Medical Journal for publication.

NEBRASKA PHYSICIANS AT THE DALLAS MEETING, A. M. A.

Clarke, Floyd S., Omaha; Cooper, A. L., Scottsbluff; Cowan, S. D., Falls City; Dunn, A. D., Omaha; Fall, Clifford P., Beatrice; Fouts, R. W., Omaha; Greene, John M., Falls City; Jones, A. F., Omaha; Liston, O. E., Elmwood; Long, F. A., Madison; Lord, John Prentiss, Omaha; Manning, E. T., Omaha; Mitchell, A. R., Lincoln; Orr, H. W., Lincoln; Owen, F. S., Omaha; Potts, John B., Omaha; Rowe, Edward W., Lincoln; Wilson, S. S., Nebraska City; Wohl, Michael G., Omaha; Young, F. B., Gering; Elias, Francis, Wymore; Evans, C. D., Columbus; Hustead, Charles L., Falls City; Lang, O. F., Falls City; McCoy, John, Alliance; Miller, Clinton James, Ord; Miner, H. R., Falls City; Morrow, F. H., Columbus; Murphy, J. Harry, Omaha; Reed, Stanley G., Omaha; Stastny, Olga, Omaha; Stokes, A. C., Omaha; Wherry, W. P., Omaha; Brush, Edward L., Norfolk; Charlton, George E., Norfolk; Davis, J. Calvin, Jr., Omaha; Gifford, S. R., Omaha; Howley, A. N., Norfolk; Pollock, F. A., Norfolk.

NEBRASKA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

The Thirteenth annual meeting of the Nebraska Academy of Ophthalmology and Oto-Laryngology was held at the University Club, Omaha, the evening of May 10, 1926. About thirty-five members attended.

Dr. H. Gifford presented three clinical cases:

Case 1. Lip flap operation for entropion. The case illustrated the average good result obtained by this procedure.

Case 2. Glaucoma, secondary to a disintegrating lens. Extraction of the lens substance had been done.

Case 3. Glaucoma 9 years after a successful cataract operation. Subconjunctival puncture at the limbus to form a fistula for drainage.

Dr. D. D. Sanderson, Lincoln, read two case reports:

Case 1. Mastoid, operation, pure culture bacillus subtilis, death.

Case 2. Baby, panophthalmitis left eye several days after birth, improved under treatment. Suddenly developed the same condition in the other eye. Death.

Dr. H. B. Lemere, the president, delivered a short address to the society suggesting the presentation before the society from time to time papers on non-medical subjects for their cultural value.

Dr. D. D. Sanderson, Lincoln, read a paper on "Further Studies of Glaucoma."

Dr. Harry Benson, Oakland, read a paper on "Some of the Complications of Para-Nasal Sinus Disease".

—Clarence Rubendall, Sec.

THE SOCIETIES

The Madison County Medical Society (including Pierce, Stanton and Antelope counties) held the May meeting at Plainview on the evening of the 4th. A dinner was tendered to visiting doctors and their wives by the Plainview profession and their better halves, at the high school building. Dr. P. B. McLaughlin and Dr. William Jepson, Sioux City, gave the program of the evening, the former giving a paper on Goiter, and the latter presented in a graphic manner statistics of malignant diseases at different periods of life and the probabilities based thereon.

At the **Richardson County Medical Society** at Falls City, May 5, following a dinner, reports of the scientific work were made by four members who had attended the A. M. A. meeting at Dallas.

A joint meeting of the **Adams County Medical Society** and the **Adams County Dental Society** was held over a dinner at the Clarke Hotel, Hastings, May 7. The feature of the evening was a round table discussion on matters of interest to both professions and was most impressive. It was agreed to have an annual joint meeting and dinner.

HUMAN INTEREST TALES

Dr. Ralph Weaver has located at Marquette.

Dr. Earl C. Sage, Omaha, has gone on a trip to Alaska.

Dr. F. W. Woeppel has moved from Wahoo to Paxton.

The Wise Memorial hospital graduated 13 nurses this spring.

Dr. George M. Hansen, an Omaha product, has located at Madison.

Dr. Clyde Hardy has moved from Ravenna to Omaha to do x-ray work.

Dr. R. C. Kirchman, Prague, and Miss Marie Kastl, were married May 21.

Dr. and Mrs. Harold Gifford returned from a four months cruise in the Orient.

Dr. Howard Updegraff, Omaha, has been in New York doing post graduate work.

Dr. P. A. Sundbury, Holdrege, has been a patient at an Omaha hospital for some time.

Dr. Charles Frandsen has moved from Scotia to Omaha where he will engage in practice.

The marriage of Dr. Julius A. Johnson, Omaha, and Miss Ruth Carlson, Chicago, is announced.

Dr. Chas. H. Zeigler, Vesta, has recently undergone a gall-bladder operation in a Beatrice hospital.

Parole was denied to Dr. J. T. Mathews, Omaha, serving a term of five years for criminal abortion.

Dr. John Schwartz, an Emerson product, has been appointed one of the city physicians of Sioux City.

A banquet to the staff doctors of St. Francis hospital, Grand Island, was given by the Sisters, April 21.

Dr. L. W. Elwood, Fairfield, has sold his equipment to Dr. J. R. Bell and will engage in practice at Indianola.

The wedding of Dr. Ludwig E. Groskopf, Gretna, and Miss Johanna Werner, recently from Germany, is announced.

Dr. Ladd Hoover, formerly of Omaha, has become connected with the Allegheny General hospital at Pittsburg, Pa.

Dr. Elizabeth Moyer-Swab, Omaha, has gone to Philadelphia to visit and to take postgraduate work in ophthalmology.

Dr. S. G. Panter, Jr., Hebron, after three months of postgraduate work in New York City, has returned to his practice.

Dr. W. E. Kelley, who for the past four years has been located at Pierce, has accepted a position on the medical staff of the Hastings State hospital.

Dr. and Mrs. Lynn J. Putnam of Omaha have returned from Vienna where the doctor spent eight months in special study of internal medicine.

Dr. E. B. Downs, formerly in practice in north Nebraska, but for a number of years in institutional work in government hospitals, has located at Sumner.

Dr. Vernon D. Thomas and wife, Pittsburg, Pa.; visited the family of Dr. V. A. Thomas, brother, Nelson, Nebr., on the return trip from the Dallas meeting of the A. M. A.

Dr. G. F. Johnson, for some years at Bayard, has become associated with Dr. C. W. Slagle, Alliance. He has recently returned from a period of study at the Mayo clinic.

Dr. H. M. McClanahan has returned from Siam where he established a clinic in memory of his wife, in connection with the Presbyterian mission at Cheng Mai. He encircled the globe on the trip.

The pre-medical students at the State University at Lincoln visited the University College of Medicine recently to get a first sight of blood and other things of interest to the prospective medical student.

Dr. G. C. Rice, Bayard, was acquitted by a jury in district court of the charge of criminal malpractice, with which he had been charged in connection with the death of one of his patients from a supposedly induced abortion.

Dr. J. A. Tamisea, Omaha, captain in the army medical reserve corps, has been ordered to take a six weeks' course in eye, ear, nose and throat work at Bellevue hospital and the government eye and ear informary, New York City.

Dr. Hugh H. Young, of Johns Hopkins, on his return trip from the Dallas meeting, was the guest of Dr. Edwin G. Davis, at a dinner at the Fontenelle Hotel, Omaha, and spoke before the Omaha-Douglas County Medical society, April 23, on "Recent Advances in Urology of General Interest".

NECROLOGY

WILLIAM R. PETERS, Stanton, Nebr.; Rush Medical College, 1904; an outstanding practitioner at Stanton for upward of twenty years; member Nebraska State Medical association; sometime secretary-treasurer and later president of the Elkhorn Valley Medical society; captain in the Medical Corps during the World War, attached to Base Hospital No. 49; died April 16, 1926, of pneumonia, after an illness of a week, aged fifty years.

PATRICK J. FLYNN, Plattsmouth, Nebr.; Creighton University, College of Medicine, 1899; formerly in practice at O'Neill, Nebr., but for the last decade a practitioner at Plattsmouth; died of pernicious anemia after an illness of six months, April 5, 1926, aged fifty-one years.

RALPH B. CRAWFORD, one of the first settlers and the first physician of Wayne county, Nebr., died in Chicago, April 12, 1926, aged 85 years. He laid out the town-site of Wayne and practiced there until about 20 years ago, when he moved to Chicago.

J. W. HESKET, Salem, Nebr.; a practitioner at Salem for forty-two years; died April 18, 1926, aged 74 years.

JONATHAN J. EVANS, Friend, Nebr.; Eclectic Medical College, Cincinnati, 1880; Columbus Medical College, 1883; died from a cerebral hemorrhage, April 5, aged 71 years.

RESOLUTIONS OF RESPECT

WHEREAS the All-Wise Providence has deemed it necessary to remove from our midst the highly esteemed and dearly beloved member of our society, Dr. J. H. Fochtman, whose untiring efforts and long service, not alone among the members of the society, in which he labored so hard and for whose welfare he was continually striving; but also in the community and county in which he lived and put forth his life's efforts, to relieve suffering and comfort the afflicted and rendered so many years of invaluable service to his fellow men.

Be it therefore resolved: That we, the members of the Dawson County Medical Society, do hereby present to the bereaved members of his family, especially the surviving children, our condolence and express to them our heartfelt sympathy, at this time of sorrow.

And be it further resolved that a copy of this resolution be sent to the family and to The Nebraska State Medical Journal.

THE NONSURGICAL MANAGEMENT OF PEPTIC ULCER BY THE "PHYSIOLOGIC REST" METHOD

The material analyzed by Frank Smithies, Chicago (Journal A. M. A., Aug. 29, 1925), comprises 470 patients affected with ulcers and who were treated nonsurgically according to Smithies' plan published in 1916. In the hospital cases, the average duration of incarceration was twenty-six days, a saving of nearly half the time and money required by the regimen advocated by Ewald, Schlutz, Sippy and others. Actual bed confinement averaged less than nine days. In 40 per cent of patients, all pain had disappeared within twenty-four hours of beginning treatment; an added 33 per cent experienced pain relief within forty-eight hours; 8 per cent required seventy-two hours; 15 per cent almost ninety-six hours; in approximately 4 per cent, it was necessary to relieve pain by opiates. The last group consisted of ulcers whose extension had advanced to the serous layer of the stomach, or the ulcers were of the deep, fissured type, directly located at the pyloric or cardiac orifice. A total of 81 per cent were subjectively comfortable in three days or less. Of 41 per cent of ulcers exhibiting positive occult blood tests when treatment was begun, at the end of five days 92 per cent of the patients' stools were blood-free. Seven cases went on to actual perforation (1.5 per cent). In sixty-six patients who came to laparotomy for numerous intra-abdominal lesions, following institution of ulcer management, completely healed scars were demonstrated in fifty-four, approximately 82 per cent. In the remaining twelve patients, malignancy, perforation, multiple ulceration or actual benign ulcer activity were present. Dyspepsia-free intervals averaging eleven months were recorded in 234 cases before treatment; it lengthened to thirty-seven months as an average after treatment. Thirty-two patients before treatment had had quiescent periods averaging nineteen months; after treatment those on whom we have reports had increased to an average of forty-four months. Recurrences were noted in 14 per cent (sixty-six cases). Of the whole group, 470 patients in their present status, there is justification for claiming cessation of the ulcer process in 361, or 77 per cent.

"AND THE DOCTOR IS STILL WITH US"*

The one universally recognized agency for the eradication of disease, the cure of illness, the prevention of physical suffering and the restoration of the sick to health, is the doctor.

Coeval with the inception of science in medicine, in the dim mists of antiquity, there appeared the greedy forces of charlatanism. For 3,000 years they have attempted unremittingly to destroy true medical science — and the doctor is still with us!

Conditions today are essentially no different than they were in the time of Hippocrates. The schools, cults, clans and piratical bands of manipulators, layers on of hands, healers by faith and adjusters of bones have always had their counterparts.

They have sought ever to strangle the cause of human health. They have through the ages striven to poison the wells from which ignorance draws its shallow draught of knowledge! They have even brought to bear on the side of persecution the tremendous odds of religious zeal and misused governmental authority — and the doctor is still with us!

Legislatures bow before the secret machinations of powerful lobbies maintained to procure the legalization of fraud which strikes at the sick and helpless. These wolves are continuously on the alert to twist a half truth or bald lie into a cunning "gas attack" which may discredit the physician or cripple his humanitarian effort — and the doctor is still with us!

Carefully trained agitators infect every nook and corner of the nation, insidiously attempting to inoculate the unschooled mind with the virus of distrust; advertising is scattered broadcast with a wanton lavishness; highly paid experts, skilled in the gentle art of deceit, strive to instill into the public mind an unreasoning hate against the most unselfish servitors of man — and the doctor is still with us!

Despite all these campaigns waged against him, the practitioner of medicine finds himself continuously meeting with a more profound respect, a deeper appreciation, governmental recognition, military acceptance, and more enthusiastic co-operation from an enlightened and friendly citizenship. The day of our destruction recedes ever further away into the dim reaches of an indefinable future!

So don't let these petty annoyances trouble you, doctor.

Just remember that throughout the whole sweep of recorded history these manipulators of the spine, healers by faith, adjusters of bones, layers-on of hands have sought to encompass the doom of the legitimate physician — AND THE DOCTOR IS STILL WITH US!

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*Presidential Address Before the Medical Association of the Southwest and the Medical Society of the Missouri Valley, by Dr. E. H. Skinner of Kansas City, Thursday Evening, Oct. 27, 1921.

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Special Article

PROGRESS OF SURGERY

HERBERT H. DAVIS, M. D.,
Omaha, Nebraska.

This review of the surgical literature for the first half of the year, 1926, is for the purpose of giving the general practitioner, who does not have time to read the surgical journals, a quick survey of the advances in surgery. In case there is anything of special interest he can turn to the bibliography and so get the articles with the least possible effort. Of course, in a short review, many things must necessarily be left out and I am including just some of the main points.

GOITER

In discussing the anatomy of the thyroid, Williamson(1) divides it into "gland units." Each of these morphological units of the thyroid gland is a lymphatic sinusoid containing colloid columns of epithelium which are enmeshed in a basketwork of specialized blood capillaries. A number of units are collected together by strands of interstitial connective tissue to form a lobule. In each lateral lobe there is a hilum at which the arteries which supply the gland units enter. On this basis he constructs a rather elaborate explanation of the various types of goiter and their treatment. It is a very excellent treatise but too elaborate an explanation to give here.

The inferior thyroid artery supplies the parenchyma of the gland. The superior thyroid artery supplies the interstitial tissue septa from the surface of the gland. There is a small anastomosis between the superior and inferior thyroid arteries. The superior thyroid artery may be compared to the hepatic artery in that it just suppulies the connective tissue.

The thyroid and thymus are directly and intimately connected through the medium of a system of lymph vessels which emerge from the region of the hilum of the thyroid and enter the thymus at its lower pole. In thirteen cases of carcinoma of the thyroid he reports no spread to lymphatics of the neck, but in nine of them there was direct spread to the thymus.

Cantero(2) in studying the bacteriology of the thyroid gland in goiter, made cultures of thyroid tissue in fifty goiters. Streptococcus predominated being of both green reproducing and hemolyzing varieties. In only three cases was there no growth. Injecting six rabbits with these cultures, five died showing hyperemia and swelling of the thyroid. Streptococcus was recovered from emulsions in all of these rabbits and from the blood in four of them. No gross lesions of viscera developed. Cantero concluded that streptococcus is important in the pathogenesis of goiter.

A new method of palpating the thyroid is described by Lahey(3). He elevates the patient's chin slightly toward the side to be palpated to relax the sterno-mastoid muscle. On the opposite side he places the ball of the thumb against the lower lateral portion of the thyroid cartilage and the upper ring or two of the trachea. This dislocates the trachea laterally toward the side to be palpated. On the other side he now places the fingers of his other hand and presses deeply inward behind the sterno-mastoid and great vessels of the neck, behind the thyroid. Then with the thumb of that hand in front of the thyroid the lower lobe is palpated between the fingers and the thumb. If there is any difficulty in distinguishing the thyroid have the patient swallow. This moves the thyroid so that the edges can be definitely palpated.

Gilman and Kay(4), arguing that the entire thyroid is diseased in exophthalmic goiter, performed total thyroidectomy in ten severe cases. Then the rest of their lives the patients take thyroid extract, the dosage of which is controlled by metabolism tests, but usually amounts to approximately one grain daily. All of the ten cases were cured, are working full time, gained much weight, symptoms are gone and metabolism is normal.

Lahey(5) states that more parathyroids are removed in thyroidectomies than is usually believed. Therefore, he has adopted the technic of inspecting each specimen immediately after removal and, if any parathyroid is found, he transplants it into the body of the sterno-mastoid muscle.

In 300 consecutive cases Barclay and Fellows(6) discuss the results of roentgen-ray therapy. They state they had functional cure in 190, 75 were improved, 15 not improved and 20 could not be traced. 11 have died of intercurrent disease and 3 from hyperthyroidism.

In discussing 48 cases in which hyperthyroidism persisted or recurred after thyroidectomy, Lahey and Clute(7) found a portion of hyperfunctioning gland remaining in all. The medical use of Lugol's solution, even over a period of months, failed to produce a single cure. Removal of a large proportion of this by reoperation in most cases brought about a cure. The essential factor in the reoperation is the separation and retraction of the internal jugular vein and common carotid artery from the thyroid segment. Then any amount of the thyroid remaining can be removed.

STOMACH

A very good discussion of gastric peristalsis is given by Klein(8) who states that there is evidence that the gastric wave originates in a nodal center on the lesser curvature at the cardia. There are two main types of gastric waves. First, the type usually seen with the roentgen ray, with the wave progressing uninterruptedly from its origin to the pylorus as a peristaltic wave. Second, a type with the wave passing downward as a peristaltic wave from its origin to the reentrant angle and this is followed by a concentric contraction of the antrum as a whole. He calls this systole.

In another article Klein(9) states that as the gastric wave reaches each point on the lesser curvature the entire circular ring at that level contracts and so the peristaltic wave passes on. At the reentrant angle there is a nodal center for muscular activity of the antrum. Irritating lesions on the lesser curvature may cause a persistent contraction of the circular muscle at the level of irritation. Excision or destruction of a portion of the lesser curvature disturbs the orderly conduction and results in weakened peristalsis at this level. The impulse reaches the muscle distal to the lesion by passing down along the lateral and greater curvatures. A segmental or sleeve resection causes complete block in conduction and establishment of an independent rhythm beyond the level of the suture line.

Klein(10), in a third article, states that the activity of the pyloric sphincter is not controlled by the acidity on the gastric or duodenal side of the pylorus. The fluidity of the chyme in the antrum is the main factor. Solid bodies getting into the antrum are carried back into the body of the stomach by retrograde peristalsis. Each advancing peristaltic wave overcomes the tone of the pylorus and forces some of the chyme into the duodenum, regardless of the reaction. Except when overcome by each advancing gastric wave, or by retrograde peristalsis in the duodenum, the pyloric tone keeps the sphincter closed. Firm decisive closure of the pylorus occurs at the termination of each peristaltic wave just after the chyme is forced into the duodenum. It effectually prevents any regurgitation.

A very complete study of the nerves of the stomach and their relation to surgery has been made by E. D'Arcy McCrae(11). Among other things he has the following conclusions. The ulcer bearing area of the stomach corresponds to the area in which the nerve branches are chiefly grouped. Local spasm with resultant anemia is a probable cause of the chronicity of ulcer, aided by retention and infection set up by reflex spasm. The results of nerve stimulation and, therefore, of nerve irritation can also simulate certain so-called "neurosis." He suggests operations on the nerves for pylorospasm and for cardiospasm.

Kapsinow(12) has been able to produce duodenal ulcer in 17 out of 43 rabbits by diverting the bile from the duodenum by performing a cholecysto-nephrostomy and ligating the common duct. He states that the bile seems to protect the duodenum.

The theory that the removal of the pyloric portion of the stomach inhibits the formation of hydrochloric acid in the stomach is attacked by Portis and Portis(13). On three dogs they produced a Pawlow pouch at the fundus and did a subtotal gastrectomy. Studies of gastric secretion after operation showed absence of free acid but high combined acid, while the secretion from the Pawlow pouch at the fundus continued to show free acid. This study indicates that after a subtotal gastrectomy the absence of free hydrochloric acid is due to neutralization. These authors suggest, but do not prove, that the artificial achylia may establish an entirely new and possibly harmful bacterial flora of the gastro-intestinal tract.

The question of gastro-enterostomy or gastric resection for duodenal ulcer is still much debated. Articles in favor of gastro-enterostomy have appeared by Balfour(14), Douglas(15), and Woolsey(16). In favor of resections are Schachner(17) and Pannett(18), and G. deTakats(19). In gastric resection new methods of anastomosing the stomach and duodenum are reported by Horsley(20) and Babcock(21). They both use end to end anastomosis. Horsley enlarges the end of the duodenum by incising its wall longitudinally for one to one and one-half inches. Babcock cuts the stomach transversely and telescopes the end of the duodenum into the cut end of the stomach.

THE BILIARY SYSTEM

There has not been much new in this in the last few months. Coffey(22) gives an explanation of the causes and harmful effects of dilatation of the common bile duct in the absence of a functioning gallbladder. He states that at night or at any time not during digestion the bile does not drain into the duodenum. During digestion each peristaltic wave of the duodenum causes an increased pressure ahead of it but behind it the pressure is greatly lowered so as to be less than that in the biliary ducts. It is at this time that bile escapes into the duodenum. In fasting, when there is very slight peristalsis, there is no period in which the duodenal pressure is less than that in the ducts. Therefore, bile does not escape. In case of a normal gallbladder, the excess bile is stored and concentrated there. However, with a diseased gallbladder or following a cholecystectomy the ducts dilate at this time due to increased pressure. In these dilated ducts stones may form or the dilated duct may cause symptoms. Coffey reports two such cases.

The method of fastening a tube into the common bile duct, extending into the duodenum rather than draining externally by a T tube, is discussed by Gatellier(23), from the clinic of Duval. They consider it the method of choice in cases of biliary retention, which are not, or only slightly infected, and are in a stage of quiescence. The bile thus is drained into the duodenum where it is utilized. He reports 16 cases with one death from lobar pneumonia during an epidemic of influenza. The convalescence is remarkably uneventful.

INTESTINAL TRACT

Studying duodenal fistula, Walters, Kilgore, and Bollmann(24) find changes in the blood the same as in intestinal obstruction; i. e., alkalosis. decreased chlorides in the blood serum, and progressive rise of blood urea. These cases respond well to the intravenous use of chlorides, glucose, and water.

Intestinal perforation due to distention is rare, occurs only in cases of mechanical ileus, and is usually at the antimesenteric border quite close to the obstruction. Van Beurens'(25) theory is that the bowel distention stretches the vessels so as to thin them and narrow their lumen. Also the pressure from within the bowel tends to flatten the lumen of the vessels. The final result is to obliterate the vessel lumen, first the vein, producing hemorrhagic infarct; and later also the artery, causing necrosis and soon perforation.

Applying the fact that if the walls of an empty loop of bowel are approximated and strongly crushed in a clamp, the walls will adhere to each other and the intestinal lumen remain occluded after the clamp has been removed, Scarff(26) has worked out a method of end-to-end intestinal anastomosis. With medium Kocher clamps applied to the bowel and then cutting it off next to the clamps, the two ends are brought together and Halsted mattress sutures applied over the clamps. Then the clamps are removed and the sutures drawn tight and tied. If necessary a few extra Lembert sutures are inserted. By pulling out on a suture on each side of the bowel the inverted crushed ends are separated and the lumen restored.

Aside from the fact that incorrect operations may be done to account for poor results following gastro-intestinal surgery, Boles(27) stresses the following points to improve the results: 1. Eradication of foci of infection, especially teeth, tonsils, sinuses, upper respiratory tract, appendix, gallbladder, and colon. 2. Elimination of intestinal stasis. 3. Elimination of biliary stasis; and 4. Improvement of the patient's general condition.

Important pathological studies of appendicitis have been made by Warren and Warren(28), and by Hertzler(29). In an extensive study Hertzler concludes that fibrotic changes in the appendix, no matter of what degree, are not attended by clinical symptoms. The anatomical structure of appendices commonly removed under the diagnosis of chronic appendicitis show no variation from appendices of individuals suffering from no abdominal complaint whatsoever. He states that the symptoms alleged to be due to chronic appendicitis can be relieved by searching out the actual cause and by removing it, relieving the patient without molesting the appendix.

UROLOGY

Hinman and his confreres have done considerable experimental work on hyronephrosis. On rabbits, when the ureter was tied(30), the renal pelvis dilates producing compression of the parenchyma. This compresses the arteries in a radial direction in their long axis, making them tortuous. As the pressure increases the parenchyma is stretched and the size of the kidney is increased. Thus the arteries pursuing a circumferential course, being elastic, are stretched and lengthened to cause a decrease in the size of the lumen. The lessened supply of blood causes ischemia and lowers the tissue tone, favoring atrophy.

By ligating the posterior branch of the renal artery(31) infarction is produced throwing one-third to one-half of the kidney out of function. If at the same time the ureter of the same side is tied off there is produced, in a remarkably short time, enormous sacculations or diverticula of the infarcted area.

In rabbits(32), they tied the ureter and injected phenolsulphonphthalein in the proximal portion. Most of the dye had disappeared from the pelvis in two days and practically all in four days. They conclude that the content of a closed hydronephrosis is neither cumulative nor stagnant, but that secretion and reabsorption continue.

Bird and Moise(33) state that if a back flow of pelvic contents into the venous system of a living animal ever occurs, it is probably by rupture of the tubules into the large straight and arcuate veins intimately related to them.

Carson(34) experimented on dogs as to a technic for nephrotomy. He found the least renal damage was done when the hemorrhage was stopped by pressure by hot packs for a few minutes and the sutures then included only the renal capsule.

In studying kidney transplants into the neck of dogs, Ibuka(35-36), found that they functioned without relation to the change of nerve supply, and that autogenous were much better than homogenous transplants. One autogenous kidney transplant functioned normally for four months. The ultimate failure of the autogenous transplants seems to be from hydronephrosis and infection, mainly from mechanical insult in the new location.

Hunt(37) gives a very good description of the technic he uses for suprapubic prostatectomy and emphasizes particularly the use of the Pilcher bag for hemostasis.

GYNECOLOGY

Pierre Z. Rheaume(38) does not agree with W. Blair Bell, who claimed quite good results with ovarian grafting. Rheaume is discouraged over his results. He states that anatomical integrity does not mean physiological integrity of the transplanted ovary. He reports a case illustrating this.

THORAX

More reports are coming in about the use of lipiodol in the diagnosis of chronic bronchial lesions. References 39 and 40 in the bibliography explain this.

NERVES

Kern(41) reported a case of section of the left vagus for the relief of asthma. It resulted in only slight improvement. No harmful effect on the heart action was observed. Bronchoscopic examination showed diminished but not lost bronchial mobility on the affected side. No conclusions are drawn as to the value of vagus section in asthma.

The experimental study of periarterial sympathectomy in dogs and cats by Mosser and Taylor(42) has failed to produce hyperthermia. Alcoholic injection of the sciatic nerve in sufficient strength to produce motor paralysis has resulted in a constant hyperthermia. Recovery of motor function occurs in practically all cases. They say this procedure is worthy of clinical trial.

Brown(43) reports good results in two cases of facial paralysis by performing a hypoglossofacial nerve anastomosis.

Singleton(44) describes his operative technic for relief of glossopharyngeal neuralgia.

DEBILILATED SURGICAL PATIENT

In rehabilitating patients with cardio-vascular disease, Lahey and Hamilton(45) emphasize the removal of surgical burdens. The order of greatest degree of accomplishment is removal of toxic goiter, removal of large pelvic tumors, and of gallbladders. This has been done with a very low mortality, and in many cases who were hopelessly disabled in spite of prolonged medical treatment, a strikingly high degree of restored ability was obtained.

In combating shock and aiding liver function, Crile(46) favors the use of diathermy and the quartz lamp. By diathermy through the liver and lung bases during operation he is able to prevent lowering of body temperature such as usually takes place during that procedure.

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ORATION ON SURGERY*

MAX EMMERT, A. B., M. D., F. A. C. S.,
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Since the dawn of civilization, when the heroic deeds of man were recorded for the edification of posterity, the practice of the healing art has been considered an honorable profession.

The development of medicine, from the incantations to the gods, through a gradual evolution, to the recent announcement by Abel of the formation, by a synthetic process, of a crystalline form of the active principal of the pancreatic gland, is a record of achievement as brilliant as any mechanical development during the past century and as permanent as the mountains, formed through countless ages by the speculative but unknown processes of nature.

The favorable recognition of those practicing the healing art is manifest through the pages of history. Irrespective of the political enmities of peoples, irrespective of religious anamosities of races, the social status of the physician in the community has been secure. At a time when the tentacles of the great Roman Empire encompassed the known world, and it was thought that nothing good could come out of Greece, we find the names of Greek physicians, together with names of Roman heroes, emblazoned, side by side, on the monuments and tablets commemorating deeds of valor and splendor.

The embryonic practices of surgery are to be found in the pieces of flint, sharpened by accidental flaking, similar to the obsidian knives of Peru, which were used for bleeding, scarifying tissue, etc. The teeth of fish were used for similar purposes. Trephining the human skull was extensively practiced with these early instruments.

At a later period surgery became surrounded by the rituals of the church to such a degree of completeness, that for centuries it was practiced by the ecclesiastics as a part of their religious duties and circumcision is mentioned in the Bible. From its intimate contact with religion, surgery has developed the high standards of service to humanity which has characterized it as the most altruistic of professions.

The leaders of our profession, until the recent past, have been high minded men, dominated by a spirit of service, working incessantly for the good of mankind; thoughtless of their own personal welfare and happiness; striving constantly to ameliorate the suffering of the human race. This group is well described by Stephen Paget in writing of William Hunter, "He never married, he had no country house; he looks, in his portraits, a fastidious fine gentleman, but he worked till he dropped and he lectured when he was dying."

Prior to the nineteenth century, surgery was practically confined to diseases of the bones and arteries. Abdominal surgery was unknown. In 1809 Ephraim McDowell, who lived in Dansville, Kentucky, and was recognized as a very successful surgeon, first performed successfully an ovariotomy upon a Mrs. Crawford, who lived to the ripe old age of seventy-eight. McDowell reported this case together with two others in 1817. During his life he performed the operation thirteen times with eight recoveries which was a remarkable record when it is remembered that those operations were performed in pre-antiseptic and pre-anaesthetic days.

The dawn of modern surgery broke about the middle of the nineteenth century with the promulgation of the germ theory by Pasteur and the surgical application, in 1865, of this theory in the development of antisepsis by Lord Lister who may be regarded as the father of antiseptic surgery. In 1815 Crawford W. Long of Danielsville, Georgia, removed a small cystic tumor from the neck of a patient under the influence of ether and later used ether in other operations. Unfortunately he never published his results and the new discovery was lost to the profession until 1884 when Morton, a dentist, used sulphuric ether in extracting a deeply rooted bicuspid tooth. He was so favorably impressed with the procedure that he induced Dr. John C. Warren to perform a minor operation upon an anaesthetised patient. This was immediately followed by other operations under ether and the new discovery was announced to the world in a paper by Henry J. Bigelow November 18, 1846.

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*Chairman's address, Surgical Section, given before the Nebraska State Medical Association annual meeting, Omaha, May 11-13, 1926.

Thus the United States, England and France share in the honor of having constructed the solid foundation which supports modern surgery.

Among the early American builders upon this foundation of modern surgery we find a galaxy of distinguished names, such as James Marion Sims, the father of Gynecology, who startled the surgical world by his results in vesico-vaginal fistula; Thomas Addis Emmet, a student of Sims, whose plastic work, upon the perineum and pelvic viscera, retains its classical aspect even to this modern age; W. W. Keen, who advanced the surgery of the head and produced a system of surgery which is found in every well organized library; Christian Fenger, one of the greatest teachers of surgical pathology the world has ever seen, whose rugged honesty endeared him to every student of surgery; Nicholas Senn, whose contributions, dealing with air embolism, surgery of the pancreas, and gun-shot wounds of the intestinal tract, has firmly fixed his name on the tablets of surgical masters; William S. Halsted whose scientific ability, coupled with a profound modesty, whose love for the truth and interest in the student, has made his name revered by the alumni of Johns Hospinks. Prof. Haltsed blazed the way and established a scientic basis for cocain anaesthesia, ligation of the subclavian artery, aneurysms, cancer of the breast, hernia and goitre. He introduced gutta-percha for drainage in 1880 and the use of rubber gloves during operation in 1890.

Many other masters of surgery lived and worked during this period, whose deeds were commendable, but time and space prevents a recitation of their work. The most outstanding characteristics of these great men, were their love for the truth and their faith in the ideals of the profession. Unsullied by sordid motives, their names will always shine as beacon lights of surgical history.

During the latter part of the nineteenth century, a new germ crept into surgical practice; namely, the *macrococcus economicus greedis*, which has largely destroyed the beautiful ideals of surgical service and caused a marked atrophy in the altruistic designs of the embryonic surgeon of today.

There are three distinct groups of those who are operating in the present age, (1) Butchers, (2) Operators and (3) Surgeons. No comment is necessary for the first group. The second group comprises those who are dextrous with their hands and careless with their brains. They are beautiful mechanics, but their work shows too many unnecessary operations and a mortality rate which is astounding. It is this group which must bear the responsibility for the present demoralization of the general practice of surgery. I wish to quote verbatim the remarks of Eisenberg of Cleveland, which appeared in a recent Bulletin of the American College of Surgeons and which are very apropos to the subject.

Speaking of errors in surgical diagnosis he says, "As to the avoidable errors, there seem to be several causes. (1) Ill trained men attempting to do surgery without sufficient knowledge and training; unfit either intellectually or mechanically, stubbornly persisting in their attempts "to get away with it" by trying to do the so-called 'easy surgery.' As a result of this they do not possess the necessary breadth of surgical vision and can not make a correct diagnosis even in those easy conditions, because of their inability to differentiate them from difficult conditions with which they are not familiar; consoling themselves when confronted with their poor work with the statement 'Even Dr. So and So once made such a mistake; perhaps even more than once' or with such trite platitudes and banalities as "the only people who do not make mistakes are those who do not do anything.

"(2) Another factor responsible for a considerable percentage of errors is the fact that many patients do not stay long enough in the hospital prior to the operation and thus are not sufficiently studied. (3) In over 30% of wrong diagnosis the fault lay in the attempt to interpret the entire clinical picture in terms of one pathological condition, whereas in reality two or more independent lesions were encountered during operation, under the microscope or at autopsy."

A perusal of the data of the Bureau of Vital Statistics as recently pointed out by Willis, shows that the number of deaths per hundred thousand from gallstones during the five year period, 1901-1905 was 2.2%. In the succeeding years it rose steadily, until 1922, the last year for which figures are available, it showed an increase of 77%. In the same period, the mortality rate from gastro-intestinal ulcer increased 72%; that from appendicitis almost 31%; while the mortality rate accompanying thyroid disease showed the stupendous increase of over 25% (loc. cit).

WHAT IS THE REASON?

The third distinct group of those who are operating is that group composed of men who are entitled to the cognomen of surgeon, and it is upon this group that the responsibility for the future of surgery in this country rests. There are three distinct characteristics which distinguish the members of this group from their associates.

(1) Diagnostic ability. This is acquired, not in the medical school, but in the general practice of medicine and in association with the leaders of the profession. This should be developed to such a degree that the only difference between the internist and the surgeon is a difference in therapy. Not only must the surgeon be competent to make a surgical diagnosis but he must be able to recognize and diagnose medical conditions.

(2) Surgical judgment. This is the greatest of the three characteristics and as a rule the last to be acquired. It can only be developed by years of experience and close observation. Upon surgical judgment depends the life and health of the patient. The surgeon who knows when and when not to operate, who knows how far to go and when to stop, who knows what tissue to remove and what to leave and who has the courage of his convictions has developed the art of surgical judgment.

(3) Operative technique is the least of this triumverate of characteristics, thought to the unthinking profession it is the acme of surgery.

The reputation of a surgeon should be built upon (a) the correctness of his pre-operative diagnosis and (b) upon his post-operative results. The individual who has a high percentage of diagnostic errors and a high percentage of mortality and morbidity, has no claim upon the title of Surgeon.

Whereas, twenty-five years ago, practically all the surgery was performed in the larger centers by a relatively small number of men, we recognize in the present day that conditions are changed. Surgery is decentralized. Nearly every small hamlet has a hospital and one or more men who are operating. The decentralization of surgery is the logical sequence of a rapidly developing age. The problem confronting us at the present time is the development of men who can handle surgery, not only in the cities but in the smaller centers and render an adequate service to suffering humanity.

What has the patient a right to expect from a surgical service? Certainly it is more than to escape with life alone. In the first place he is entitled to a correct diagnosis before operation, secondly, he is entitled to competent surgery and thirdly, he has a right to expect to be materially benefited physically by the operation. A failure to realize these rights has been partially instrumental in turning the laity away from the legitimate practice of medicine and the cause for the failure to realize these rights can be charged to that group in the medical profession which is more interested in the patient's bank account than in the scientific and moral phases of surgery.

WHAT OF THE FUTURE?

With the decentralization of surgery which prevents frequent contact between the young and older surgeons, prevents clinical facilities to aid in the development of the younger surgeon and with the demand and expectation on part of the laity to receive adequate surgical service in the smaller communities, there arises a necessity for the better development of the man who wishes to do surgery. Under present conditions every graduate of medicine is licensed to practice surgery, with the result that many people pay with their lives and many more with destroyed health for the experience of the unprepared surgeon. By reason of the thirst for material gain coupled with an elastic conscience which is not affected by poor results on the part of the unprepared operator, the price paid by the innocent public for the development of these ambitious surgical embryos is altogether too great.

In my opinion the medical profession should foster and urge a change in our state laws which would separate surgery from the general field of medicine. A graduate from a recognized medical school desiring to practice surgery should be required to remain in the general practice of medicine for a period not less than five years. He should then be required to spend at least one year in the intensive study of surgery in some recognized clinic or in association with some recognized surgeon. After which preparation a special certificate or degree should be conferred upon him which would entitle him to practice major surgery.

The five years of general practice would broaden his vision, fix his theoretical knowledge acquired in medical school, aid him to differentiate between apparent and real disease, impress upon him his responsibility to his patient and in every way establish a solid foundation for his surgical structure. One year of intense surgical training under the proper tutelage would give sufficient practical contact with surgical patients to enable him to intelligently handle the ordinary surgical case.

A plan of this kind would safeguard the public against utter incompetency on the part of the individual who is more of a salesman than a surgeon; it would have a marked effect upon the re-establishment of confidence in the entire medical profession by the laity; it would increase a greater mutual confidence and respect between the medical man and the surgeon; it would markedly raise the standards of surgery and greatest of all it would largely eliminate unnecessary and incompetent surgery, the realization of an ideal which should be the goal of every conscientious surgeon.

SYSTEMIC BLASTOMYCOSIS

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The recognition of blastomycetic dermatitis as a pathological entity dates from the meeting of the American Dermatological Association in May, 1894, when Gilchrist(1) demonstrated sections containing budding organisms which had been taken from a skin lesion. In July, 1894, Busse and Buschke(2) reported cases from Busse's clinic in which they had found coccoidal bodies. Busse and Buschke first demonstrated the fact that the budding organism reproduced the disease by inoculation of the skin of their patient. Sanfelice(3), Campanini(4) and Casagrandi(5) following this, published articles on the morphology and biology of the organism, their resistance to chemicals and their relation to malignant tumors in man. In 1902, Hyde and Montgomery(6) reported thirteen cases of cutaneous blastomycosis with clinical, histological and bacteriological detail. In 1904, forty cases had been reported in North America. In 1908, Montgomery and Ormsby(7) gave a review of twenty-two cases of systemic blastomycosis. The residences of the twenty-two patients at the time of contracting the disease were as follows: Chicago 13; Iowa 2; Indiana, Wisconsin, Ohio, Maryland, New York, Germany and France, 1 each. Numerous cases, both cutaneous and systemic, involving nervous (8) respiratory(9) (10), genitourinary(11) and gastrointestinal systems(12) have been reported. Cases have been reported in Germany, France, England, Italy, India, Africa, South and North America, many of those of North America centering around Chicago, although cases have been reported in various other sections of the United States.

The following cases of systemic blastomycosis entered the medical service of J. S. Goetz, M. D., University Hospital, Omaha, May 15, 1925. The case is of interest on account of its rarity in Nebraska, although there have been several reports published of cutaneous involvement only. (13) (14) (15).

REPORT OF CASE

History: Mr. W. H., a white man, age 27, laborer, engaged in road building, hauling cement and carpentering, was admitted to the University Hospital complaining of weakness and loss of weight. Ten months previous to entrance he had a lower respiratory infection diagnosed influenza. This was followed by a loss of strength. Five months later he had a similar attack with cough, temperature 102 and a pleuritic pain in the left thorax; this attack lasted one week, from which he recovered and returned to work. Two months later he had a third attack, similar to the preceding, with a persisting pleurisy in the left thorax. Each of these illnesses left the patient weaker and with loss of weight (forty pounds). One month later he developed signs of an interlobar fluid and several aspirations were made without obtaining fluid. Following this, a soft subcutaneous nodule one and one-half cubic centimeters in diameter developed over one of the lower right costal cartilages and disappeared after two weeks. Similar subcutaneous nodules appeared over the middle third of the left tibia and the right ankle which were opened and a flaky, cream colored pus removed. There subsequently developed at intervals varying from two to seven days, new lesions of a papular and papulopustular type on the face which gradually became crusted and spread in diameter. The tonsils were removed at this time in an effort to remove any possible foci of infection causing what was diagnosed as an acute metastatic periostitis.

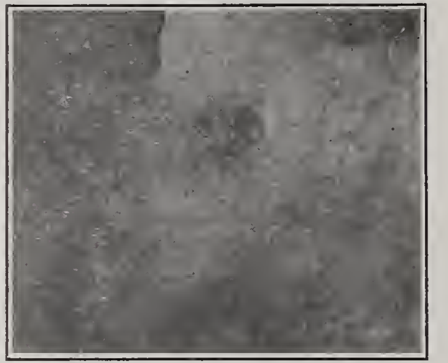

Fig. 1. Papillary lesion on face.

Family and Past History: Father and mother were well, one brother had died of influenza, two brothers and one sister were well. Wife and one child were well. There was no family history of tuberculosis. The patient had had repeated attacks of tonsilitis and lower respiratory infections and subacute articular rheumatism at age of 25.

Physical Examination: The patient was malnourished and unable to walk on account of weakness. There were several cutaneous lesions over the face and extremities. Those on the face were elevated above the surface of the surrounding skin and varied from one-half to one and one-half centimeters in diameter. Then surfaces were covered with irregular, fine, papilliform projections, fairly firm and dry, producing a brown wart-like appearance (Fig. 1). A sera-bloody pus exuded on pressure. Lesions on the hands and legs had been opened to drain, leaving a soft graulated base with papillary projections bathed in a sero-pus (Fig. 2). Respiration was impaired and there was an area of flatness over the lower portion of the left lung posteriorly. The liver extended four fingers below the costal border. The spleen was not palpable. Temperature 102°.

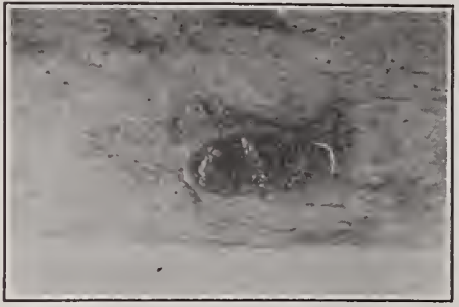

Fig. 2. Granular ulcer of leg.

Laboratory: Smears of the pus from all lesions showed refractile-bordered yeast fungi with many budding forms (Fig. 3). Cultures of the pus on Saboraud's maltose agar gave an abundant growth of a mould fungus with a white fluffy appearance. Microscopical examination showed the mycelial forms of the organism and later aerial hyphae. Examination of the sputum, gastric contents and urine also showed the yeast fungi to be present in large numbers. Stains made from the sputum were negative for tubercle bacilli. Blood examination showed hemoglobin 70%, red blood cells 4,800,000, leukocytes 18,000, polymorphonuclears 91%, mononuclears 8% and eosinophiles 1%. A roentgenogram of the lungs on entrance was negative and the tibia and ankle showed no bone disease. Blood culture was negative.

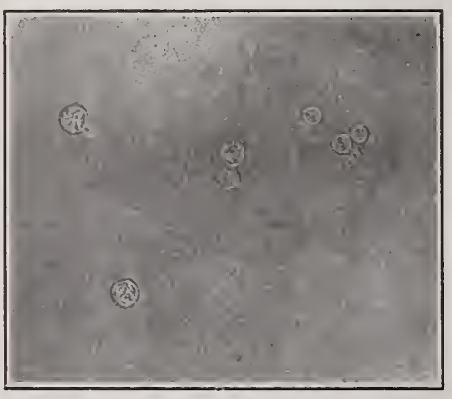

Fig. 3. Budding yeast fungi found in smears.

PROGRESS AND TREATMENT

A diagnosis of systemic blastomycosis was made. Seventy-five minim doses of saturated solution of potassium iodide were given by mouth four times daily for ten days with no improvement. Blastomycetes continued to be present in the lesions, sputum, gastric contents and urine with no decrease in number. The temperature had continued to be septic, reaching 103%. The potassium iodide was discontinued and copper sulphate in one-half grain doses three times daily by mouth and a 1% copper sulphate solution locally to the lesions, as recommended by Bevan (16) was used for one week without improvement. At this time the elbow and shoulder had become stiff and several new popular lesions appeared over the extremities, face and body. A second blood culture was negative. The copper sulphate was discontinued and mercurochrome, twenty-five cc. of 1% solution was given intravenously, at three and four day intervals and was repeated two times. The reaction from the mercurochrome caused the temperature to rise 1 to 2 degrees and a diarrhoea which was controlled by morphine. During this course of mercurochrome treatment, the body became covered with petechial hemorrhagic spots appearing in successive crops. Increased bronchial breathing and dullness developed over the entire lung area. A second roentgenogram of the lungs showed them to be studded through with miliary nodules, the plate resembling one of acute miliary tuberculosis. The respirations increased to sixty, the pulse to one hundred-forty and the temperature 105°. The patient became irrational and died a respiratory death a few days later, June 22, 1925 .

NECROPSY

Gross: The skin was covered with petechial hemorrhagic spots and blastomycotic lesions in various stages of development. The liver extended four fingers below the costal border, weight 2770 gms., and the anterior surface was covered with a fibrinous exudate. It cut with increased resistance but showed no unusual markings. The spleen was enlarged, mottled, firm and covered with a fibrino-purulent exudate, weight 990 gms. There were perforated abscesses on the superior and posterior surfaces, one-half centimeter in diameter. The cut surface of the spleen was firm and hyperplastic, with white miliary nodules through and 8 to 10 abscesses varying in size from one-third to two centimeters in diameter. (Fig. 4). The kidneys were normal in size and shape but the cut surface showed a few white miliary areas in the cortex and medulla. The lungs were studded densely throughout with white miliary nodules almost identical in gross appearance with acute miliary tuberculosis (Fig. 5). There was a left-sided pleural empyema with perforations through the diaphragm directly from abscess cavities of the spleen. The remaining organs of the thorax and abdomen showed no significant gross pathology.

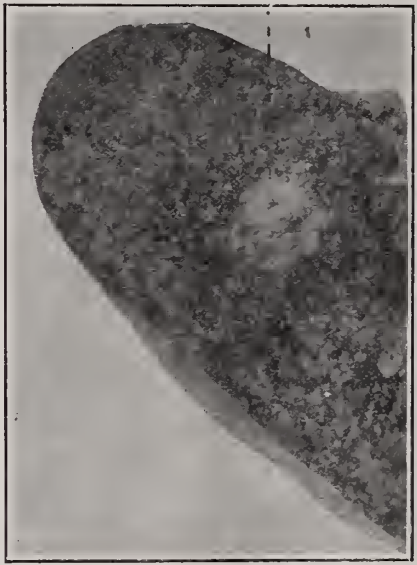

Fig. 4. Cut surface of spleen showing large abscess, miliary and confluent nodules.

Microscopic: The following microscopic report was furnished by Dr. H. E. Eggers.

Spleen: Microscopic sections showed large areas of necrosis, in which the blastomycetes were present in large numbers, accompanied by a limited number of polymorphonuclear leucocytes. Surrounding these areas and to a less degree diffusely throughout the splenic tissue was marked connective tissue overgrowth, with occasional organisms present in the necrotic areas, particularly near their margins. Both old and recent hemorrhage had occurred in the vicinity of these lesions.

Lung: The lung showed closely aggregated nodular areas, in which the alveolar openings were distended and packed by enormous numbers of blastomycetes, embedded in an albuminous matrix, in which there were also present limited numbers of polymorphonuclear leucocytes. In most cases there was little apparent destruction of the alveolar walls, and there was no evidence of fibrosis.

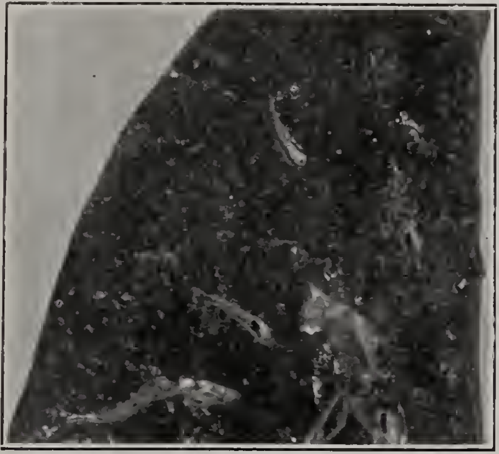

Fig. 5. Cut surface of lung showing dense white miliary nodules very similar in appearance to miliary tuberculosis.

Kidneys: These organs showed occasional areas of massive infiltration with blastomycetes, having as a rule a wedge-shaped outline, as if the process had mechanically forced apart the normal tubular structures. Occasional polymorphs were present in these infiltrated areas, with what appeared to be greatly distorted fibroblasts more strikingly in evidence. At the margin of these areas there was infiltration, predominantly of lymphocytes, with some polymorphs and hemorrhage, but no fibrosis. In addition, many of the glomeruli showed clusters of blastomycetes, with as a rule little or no inflammatory reaction accompanying their presence here. The tubular cells showed advanced acute parenchymatous degeneration.

Liver: Scattered at frequent intervals throughout the liver tissue, principally in the peripheral portions of the lobules, were focal areas of connective tissue overgrowth associated with lymphocytic and polymorphonuclear infiltration, in which occasionally blastomycetes could be found in small numbers. Giant cells also were occasionally found here. The liver cells showed a moderate degree of acute parenchymatous degeneration.

Summary: Only in the spleen was there found the usual marked evidence of long-continued infection with the organism. In the case of the lung this was completely absent, the only inflammatory reaction being of acute type and that not very marked. In the liver, the lesions, while numerous, were not extensive, but partook of the more usual reaction to this organism. In the kidney, the larger lesions were on the whole characteristic, but in the case of the glomerular infiltration, evidences of any tissue reaction were practically absent. In the glomeruli, the presence of the organisms might be regarded as a transitory one, occurring during the course of their discharge, but in the lung, where tissue reaction was also minimal, the findings scarcely admit of this interpretation and it would seem that the very massiveness of the infection here was responsible for the lack of body response.

CASE ANALYSIS

The place of primary entry in the case reported in this paper is uncertain as the spleen was the only organ which gave evidence of long continued infection. Other organs and tissues of the body apparently became involved later judging from the acuteness of the pathology. The patient had several cutaneous lesions three years previously that were thought to be boils but which might have been the original foci of infection from which the disease became systemic, localizing secondarily in the spleen.

The clinical course of his present illness began with repeated attacks of lower respiratory infection followed by the formation of multiple cutaneous nodules and abscesses with accompanying symptoms of a low grade sepsis, fever, loss of strength and weight. The late symptoms indicated pulmonary involvement with radiographic and pathologic findings similar to acute miliary tuberculosis.

The subcutaneous and cutaneous lesions were the first definitely recognized manifestations of the disease, although there was evidence of systemic infection five months earlier. Death resulted from gradual exhaustion, due to chronic pyemia and from respiratory failure by sudden massive involvement of the lungs.

Potassium iodide, copper sulphate and mercurochrome failed to rctard the progress of the disease.

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GOITER*

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Of all the ductless glands of the human body, the thyroid seems to be the one of which we know most, regarding its structure, function, and derangements of secretion, with its varying pathology.

The simple method we have now of measuring the basal metabolic rate of an individual, has been a great means of advancement, in detecting the disturbed function and changes in this gland, and also has given us a somewhat nearer perfect means of properly classifying the different types of goiter.

The basal metabolic rate is a measurement of the heat production in an individual under standard conditions. Therefore, it has a greater fundamental significance than simply as a test for hypothyroidism or hyperthyroidism, although as will be seen, a very high percentage of all abnormal basal metabolic rates are dependent on or accompanied by an altered function of the thyroid gland.

Of the diseases so far investigated, the following are characterized by an increased basal metabolic rate:

Exophthalmic goiter, the hyperthyroidism of thyroid adenoma, the active stage of acromegaly (hyperpituarism) and all febrile conditions in other diseases, such as hypertension, pernicious anemia, luekemia, diabetes, and possibly a very few other diseases not yet investigated.

A basal metabolic rate slightly above normal, may occasionally though inconsistently, be met with at various stages of the disease. In actual practice it has been found that 95% of all abnormally increased basal metabolic rates are due to hyperthyroidism, either exopthalmic goiter or of thyroid adenoma, if a febrile condition is eliminated by the thermometer.

A decreased basal metabolic rate is characterized by myxedema and to a lesser degree of hypopitiutarism.

There are other conditions, however, in which there is a decrease in the heat production. For example: those conditions which resemble early stages of myxedema without the edema and which Plummer has tentatively grouped under the term secondary hypothyroidism, largely because they improve clinically as a result of thyroid administration.

In this sub-group are cases of inanition from prolonged fasting, or from restricted food intake, such as occurs in anorexia nervosa, esophugeal stricture, or in cardio spasm, and lately, a few cases of decreased metabolic rate cannot be placed with any of the preceeding groups, and must remain unclassified for the present.

The recent advances in the practical application of indirect calorimetry have rendered it possible for the physician to measure accurately and fairly readily under standard conditions, one of the most fundamental phenomena of life, namely, the rate at which the life process of combustion is proceeding within the body.

Calorimetry, like the taking of the temperature, is a measurement of certain heat phenomena. Just as the thermometer has furnished the means of distinguishing accurately and readily two great classes of diseases, the ferbrile and the afebrile, indirect calorimetry similarly allows precise differentiation of three large groups of disease:

1st—Diseases characterized by a normal rate of metabolism.

2nd—Diseases characterized by an increased rate of metabolism.

3rd—Diseases characterized by a decreased rate of metabolism.

Furthermore, just as there are various diseases with abnormal temperatures, there are several diseases that have abnormal basal metabolic rates. So far the most clearly defined groups of cases with abnormal basal metabolic rates are those due to disturbances in the functional activity of the thyroid gland.

In making our classification of goiter, we will use that of Plummer, as it is the most simple and I believe the best. He claims there are only three definite types of goiter; Colloid, Adenomatous, and Exopthalmic, and that all other types seen clinically are either variations or combinations of these three.

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*Read before the Madison County Medical Society, Plainview, Neb., May 4, 1926.

Colloid goiter is a goiter of early life, as it occurs most frequently between the ages of 15 and 25 and is very seldom, if ever, seen in persons past 30 or 35 years of age.

In this group are included many of the so-called adolescent goiters that are so frequently seen in young women, usually producing the uniform fullness of the neck. These types not infrequently are accompanied with nervous symptoms and tachycardia, making them often hard to differentiate from Toxic Adenomata goiter. However, the basal metabolic rate in these cases are always normal or slightly lower than normal and is never increased, making the diagnosis positive of colloid goiter. This form of goiter disappears under the administration of iodin, or thyroxin, and is the only form of goiter that should be treated with these substances; making colloid goiter purely a non-surgical condition.

In the American Medical Journal of November 12, 1921, a very pointed editorial under the heading of "Iodin and Simple Goiter", states most clearly the duty of the medical profession in handling these cases, stating that man's metabolic welfare depends in part on the maintenance of this seemingly insignificant yet actually indispensible store of .iodin or thyroxin, or thyroid hormone. The lack of the element is unquestionably the immediate cause of simple goiter, whatever the ultimate factors involved may prove to be.

According to Marne, if the iodin store in the thyroid is maintained above 0.1 per cent, no hyperplastic changes will take place, and, therefore, no goiter can develop.

Marine and Kimball show that simple or endemic goiter, which is by no means uncommon in the U. S., and which may lead to later degeneration or terminal metamorphoses of undeniable seriousness, can be prevented by the administration of from 3 to 5 mg. of iodin twice weekly over a period of a month, and repeated twice yearly.

A considerable mass of statistical data now available, both here and abroad, corroborates this finding. Is it not time for the medical profession to give special attention to this matter when simple goiter has an incidence of more than 75% among school children in certain regions. If prevention of goiter is good preventive medicine, it is better preventive surgery. With so simple, so rational, and so cheap a means of prevention at our command, this human scourge, which has taken its toll in misery, suffering, death throughout all ages, can and should be controlled, if not eliminated.

Plummer has come to the conclusion, from an intensive study of the clinical findings in the large number of cases of different types of goiter examined at the Mayo Clinic, that there are two separate and distinct clinical types of hyperthyroidism, each associated with a distinctive pathologic change in the thyroid gland; that in one type the hyperthyroidism associated with clinical syndrome of true exopthalmic goiter is always accompanied by hypertrophy and hyperplasia of the thyroid gland; and that in the other type the hyperthyroidism pathologically not associated with the typical hypertrophy and hyperplasia, but with the occurrance of adenoma in the gland is due to the adenoma and that the resulting clinical syndrome is distinguishable from that occurring in the exopthalmic goiter.

The statistics of operations done, seem to warrant these conclusions:

That hyperplasia of the thyroid never exists without a production of thyroid secretion in excess of the demands of the individual.

That exopthalmic goiter is a clinical entity associated with a pathologic process in the thyroid.

That if hyperplasia of the thyroid is of a sufficient degree or extends over a long enough period exopthalmus is almost sure to develop.

That no matter how intense the intoxication from an adenomatous or colloid goiter not associated with hyperplasia, exopthalmus will not develop.

In addition to the two distinct clinical entities of adenoma of the thyroid with hyperthyroidism and exopthalmic goiter, Plummer recognizes a small intermediate group. At operation the thyroid in these cases is found on pathologic examination, to have besides the adenoma more or less typical areas of hypertrophy and hyperplasia of the parenchyma, varying between very small intra-adenomatous or extra-adenomatous areas to a small adenoma embedded in a typical hypertrophic parenchymatous thyroid.

Adenomatous goiters seldom produce toxic symptoms in persons under 30. A large per cent of patients suffering from hyperthyroidism or thyroid adenoma coming to a doctor for treatment, are more than 40 years old, and give a history of having had a more or less hard nodular goiter for many years, when it caused no symptoms except that locally there may be a slight feeling of fullness.

Usually for 2 or 3 years before consulting you a gradual change in health has taken place; they have become more nervous and excitable, and in the early stages they may have even a feeling of unusual well being, and over-enthusiasm for work, which is coupled, however, with the remark that they were unable to maintain for a long time either mental or physical effort. The patient speaks of good appetite, and in spite of this is loosing weight. The skin becomes warm and moist, with a tendency to perspire freely. They feel that the heart is beating faster and harder, probably first noticing this on going upstairs or running. The blood-pressure often shows hypertension. Later a distinct increase in nervousness and mental inability, a moderate tremor of the fingers and tongue, an increase in dyspnea on exertion, necessitating a decided modification in the mode of life. In the older and more severe cases there is evidence of cardiac insufficiency with more or less edema of the legs and ankles, frequently accompanied by myocardial disintegration, evidenced by an irregular rhythm due either to premature contractions or auricular fibrillation, gastro-intestinal crises, and exopthalmos of so frequent occurrance in exopthalmic goiter are absent.

The symptoms of this form of goiter seem to be of a cardio-vascular nature. The treatment of an adenomatous goiter is surgical as soon as the symptoms take on the condition of hyperthyroidism, which is usually not before 25 or 30 years of age.

Exopthalmic goiter may occur at any age, but is probably most often seen in the third and fourth decades of life. In many instances the condition develops suddenly with rapid increase in severity of symptoms, but in some patients its onset is insidious and severe symptoms do not develop until the second six months of the disease, at which time the patient often passes through a period of severe toxemia in which all of the classic symptoms of exopthalmic goiter are present, and which is termed a thyroid crisis.

In others the disease tends to run a chronic course without the development of a true crisis. As a rule such symptoms as nervousness, tachycardia, tremor, flushed moist skin and loss of weight and strength begin rather shortly after the onset of hyperthyroidism, and in some instances even before an enlargement of the thyroid has been noticed.

After passing through a crisis, the patient usually improves considerably, but in the majority of instances, at some time within the next few years, he passes through another similar period. During these periods very marked damage occurs to the heart and vital organs, and patients who escape death usually become chronic invalids, as a result of the degenerative changes.

The best results in the treatment of exopthalmic goiter are obtained through surgery, done before secondary changes have done great damage to the heart and vital organs.

REMARKS

I have gained the information, from patients who have consulted me with different forms of goiter, that preparations of iodin and thyroid extract have been prescribed for them as a treatment to remove or cause the goiter to disappear. I am positive that great harm can be produced in the indiscriminate use of iodin, given especially to patients who have an adenoma with no symptoms of hyperthyroidism.

These simple adenomas can be very quickly changed into a toxic adenoma, giving positive symptoms of hyperthyroidism and bringing about this condition so permanently that a surgical operation will be the only means of giving them relief. I am afraid that a large number of people are going to be sent to the operating table by the injudicious use of iodin and thyroid extract.

The use of iodin as a preparatory treatment for operation in cases of exopthalmic goiter, has made the operation of preliminary ligation almost obsolete, and it is wonderful how quickly they will respond to this medication and soon get in a condition where a thyroidectomy can be done with very little or no danger.

It is in this condition and in simple adolescent goiter in young persons under twenty years of age and never over twenty-five, that iodin has proven itself a favorable remedy. Also the adenoma with typical areas of hyperplasia and hypertrophy of parenchyma. These cases, like the exopthalmic, can be held for a time with improvement preparatory for operation, by the administration of iodin.

SUMMARY

1. The use of calorimetry allows us a true and positive means of detecting hyperthyroidism and hypothyroidism.

2. Colloid goiters occur in young persons; are not surgical and respond to treatment with iodin and thyroxin.

3. Adenomatous goiters usually appear in young persons. Unless they attain considerable size, they should not be operated until hyperthyroidism has developed. They should then be operated without delay.

4. Exopthalmic goiters occur at any age. The condition is best treated surgically, and the best results are obtained in patients operated on early.

EXCESSIVE VOMITING OF PREGNANCY—SOD. BICARB. INTRAVENOUSLY

Wilson succeeded in bringing about a cure or decided improvement in 35 out of 36 cases of severe vomiting of pregnancy by a single injection of 350 cc of a 3% sod. bicarb. solution. (South. Med. Journ., Birmingham No. 17, 1924).

THE ACUTE ABDOMEN

EARLE G. JOHNSON, A. M., M. D., F. A. C. S.,
Grand Island, Neb.

Definition: "This abdomen is one in which there is a sudden onset of acute abdominal pain preceded or followed by nausea or vomiting, or both, with tenderness and rigidity over the whole abdomen as a rule, but more pronounced over most painful area suggesting the site of the lesion and with or without depression or shock."—(Deaver).

Under this definition the acute abdomen is an enormous subject surgical or medical, traumatic or non-traumatic. The writer is given the necessary courage to review such a field by the fact the mortality in the treatment of these cases is only good when a diagnosis is made very early.

Abdominal pain is produced by various causes. First, reflex pain is caused by irritation of the sympathetic system and is violent. This pain is reflexily produced by distention of some hollow viscus or by the interference with the circulation of some organ which in turn caused violent spasmodic irregular contractions of the intestines.

Second, irritation of the parietal peritoneum produces various types of pain more or less severe as in perforated gastric ulcer, extravastion of urine, feces, blood, and by local peritonitis. This type of pain varies from the agony produced by the acid of gastric juice to soreness or local tenderness of a localized peritonitis elicited by active or passive movements of the patient.

A third group of cases producing abdominal pain is that of lesions of local organs. This group of abdominal pain rather difficult of definition as to cause, is very characteristic of its local lesion for example the hunger pain of a gastric ulcer.

A fourth group of cases of abdominal pain is found in those conditions which produce hyperstalsis as in obturation ileus, irritating intestinal contents, etc.

In a final group can be placed those cases of abdominal pain caused by extra-abdominal pathology.

The second cardinal symptom of the acute abdomen is vomiting. When a patient is seen suffering from a sudden onset of colicky pain in the abdomen and vomiting a true emergency exists. That type of vomiting produced by strangulation of the circulation of the gut is violent; is of stomach contents and is repeated several times. An interval of no vomiting and less pain follows. This interval of comparative comfort gradually changes to the obstructive type of vomiting, symptoms of peritonitis appear and gangrene is found. It is too "early for a late operation and too late for an early operation."

Vomiting occurring in obturation ileus is usually late after the appearance of pain. It may be a week after the occurrence of the obturation of the colon whether this be of sudden or slow development. When occurring at the pylorus the vomiting is much earlier.

In adynamic ileus vomiting is due to a paralysis of the gut and is usually seen in cases of advanced peritonitis. In this group belongs dilitation of the stomach with or without peritonitis.

Vomiting may also occur from gormandizing, intoxications as uraemia, pregnancy, drugs, poisons, alcoholism, etc.

In many of these acute abdomens with vomiting shock of more or less degree is noted.

As the patient is considered objectively the most important finding is abdominal rigidity. It is most marked in conditions of violent irritation of the parietal peritoneum by extravasted fluids, in early peritonitis, and pancreatitis.

A very pronounced rigidity may be produced by thoracic pathology, alone or associated with a peritonitis of the upper abdomen.

Very rigid abdomens may be of reflex origin as seen in renal colic. Where abdomens are opened in such a mistake of diagnosis the gut is also seen in spasmotic contraction.

Tenderness is the second in importance of the objective findings. This sign when carefully elicited will in many cases be the deciding factor in the location of the disease by the examiner. The inspection and palpation of the abdomen for a mass must be made.

Abdominal distention is a sign of importance in so far as the time of its onset and location is determined. The lower obstructions give the greatest distention which it must be remembered are several days in developing. This sign may be very marked in adynamic ileus but is for the most part due to dilitation of the stomach.

In the group of causes of abdominal distention arising from toxaemias, must be remembered pneumonia. Other instances of this sign are cases of free gas and fluid exudate in the abdominal cavity.

One more very important sign is the observation of peristalsis or the determination of its presence and degree by auscultation. Evidence of peristalsis will make the differential diagnosis between post-operative peritonitis and post-operative obstruction. Finally the general rule of abdominal infections is for a relatively low temperature ranging from normal to 101 except that duct infections may often produce a higher range. Leukocytosis also runs higher in thoracic than abdominal cases.

The necessity of having these chief symptoms and signs fixed in our mind is vital to all concerned in a given case. On following such an outline as just given a quick and accurate diagnosis is a logical process.

Excluding for the moment the traumatic abdomen, the above very hurried review of the acute abdomen is called to your attention that an early diagnosis may be made and for the more important fact that these acute abdomens with their comparatively high mortality, and incomplete recoveries are not in very many cases the result of virgin pathology. An accurate history of each acute abdomen will, in sixty per cent of cases make a diagnosis of the cause, determine the type of treatment, the site of the incision and the operation to be performed if the case be surgical. In a large percentage of cases I have found that the acute abdomen is the end result of a chronic pathological process which has given evidence of its presence for a more or less prolonged period.

If it is true that the acute abdomen must be seen and diagnosed very early to be saved from a fatal issue; if it is accepted that the acute abdomen occupies too prominent a place in vital statistics due frequently to untimely or unsuitable operations, what prophylactic measures may be adopted to prevent the acute abdomen?

First, in importance to the anwser of the question I will place the relief of chronic intestinal obstruction. Patients are not as ignorant of their physiology and anatomy as our neglect of their instruction might lead us to believe. Bearing this statement in mind chronic intestinal obstruction has been cured in ninety per cent of cases by the following simple and homely lecture to the patient.

1. A horse or cow must have coarse food, for example hay. A concentrated diet as corn will founder. The human digestion is quite similar. He must have the right proportion of coarse food. The hay foods adaptable to the human palate and digestion are the natural coverings of the fruits, grains and vegetables. Another great class of these foods rich in cellulose are those vegetables growing above the ground. Remind the patient of the effect of grass upon the grazing domestic animals. The patient, if obese, can be bound more closely to the observance of this diet if his attention is called to the fact that it will also reduce his weight.

2. On rising, wash the mouth, drink a glass of water hot or cold, dress, and drink a second one. Do this before each meal. Drink one or two glasses of liquid with each meal. Before going to bed eat an apple baked or raw or a sack of popcorn and drink another glass of water. This will give the individual between six and seven pints of water at the time needed.

3. A regular hour for going to stool, Sunday and holidays included.

4. Physical exercise. Lying on the back, raise each leg alternately and later together, to a perpendicular; lower them slowly. As the abdominal muscles grow stronger keeping the legs on the floor raise the body to a sitting position. These two or three minute exercises will strengthen the accessory muscles of defecation as well as giving a very beneficial massage to muscles and circulation of all abdominal visera.

5. Have two or three ounce vegetable oil enemas given slowly while the hips are somewhat elevated and retained all night. This measure will be needed in about one in fifty cases. Paraffin of a high viscosity may be given by mouth after noting that its action is entirely a mechanical one.

Further measures such as a support for viseroptosis may also be indicated in selected cases.

These cases will report back to the office in a week or ten days cured of their stasis in ninety per cent of cases, and much less liable to the threat of an acute abdomen, hypertension, and other constitutional disorders, arising from intestinal acute intoxication due to chronic intestinal obstruction.

Those cases not relieved by the above regime represent the chronic abdomens which if not treated surgically as such will at some future date become acute abdomen with all the uncertainty of cure by the skillful application of our surgical art.

One class of the acute abdomen namely acute obstruction, still has in this country a mortality of about fifty per cent. Dr. J. E. Summers gave figures from the University Hospital showing a much smaller mortality in these cases.

Of course, there are many other conditions than chronic intestinal obstruction which predispose to the acute abdomen. i. e. herniae, cholocystitis, gastric ulcer, crippled tubes, tumors of the uterus and its adnexia, neoplasm of any of the abdominal visera, congenital defects of mesentery or gut, circulatory disturbance of the mesenteric blood vessels, etc.

Any of these for the best results to the patient must be treated surgically as such before they become the pathology of the acute abdomen.

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DISCUSSION

B. B. DAVIS, M. D., (Omaha): I have been very much entertained by this paper, and after hearing Dr. Johnson read the paper, I have concluded he is a mighty good doctor. A man who analyzes his cases in the way he has done shows he has his eyes open and is using his head all the time.

When I am called to a case of acute abdomen—and we see a lot of them—the first thing I want to determine is whether it is a mechanical thing or an inflammatory. I believe there is a little rule we can follow that will tell us in almost 100 per cent of the cases whether we have an acute mechanical or acute inflammatory trouble by looking at the patient, without asking a question or putting our hand on him. As soon as you step into the room with a patient suffering from acute abdomen, you will see one of two things. If it is mechanical, you will see him rolling and twisting in all sorts of shapes and getting into all sorts of positions in order to relieve himself. He will perhaps be holding his hand over his abdomen. If it is inflammatory, he is lying very still. He does not want to be disturbed. By following this rule as to the first thing to notice, I believe you will in almost 100 per cent of the cases be able to make your differential diagnosis between those two big groups of cases—the mechanical and the inflammatory abdomen.

Another thing the doctor brought out at the beginning was to make a diagnosis if you can. I want to emphasize that. Don't waste a lot of time making a refined diagnosis in one of these cases when every hour counts. I have regretted a number of times having waited to try to make a diagnosis; but I have never regretted having gone ahead and done the operation, although I could not have a definite diagnosis beforehand.

Just one word about a method of dealing with these cases of intestinal obstruction, whether they are mechanical, or due to a paralysis of the intestine. Of course if we get an early mechanical intestinal obstruction, it is all right to relieve your obstruction. If you have a case that has gone for two or three days with this obstruction, and you relieve the mechanical condition producing the obstruction, all the toxic material above sweeps down and is absorbed, and your patient is overwhelmed with toxemia, and dies. If you content yourself with a local anesthetic, making the incision above and to the left of the umbilicus, doing a jejunostomy, you will probably save your patient. When his condition is ripe, you can relieve the mechanical obstruction.

The same is absolutely true in all these cases of obstruction due to paralysis from an inflammatory trouble. In those cases I have gone in and have done a jejunostomy and have had quarts of toxic fluid evacuated through this little tube, and within a few hours they get in good condition. I know in this way I have saved a great many lives.

E. G. JOHNSON, M. D., (closing): I thank Dr. Davis for those gracious words. When you have made an attempt at a paper before a state organization, it requires considerable nerve to pick out a subject of that size. Yet the point I had in mind was the relief of a certain per cent of these acute bellies by treating the chronic condition which precedes it. I think perhaps referred pains are at times due to these chronic abdomens described, which have been chronic for years. I appreciate it is sometimes difficult to bring these cases to surgical intervention when they are chronic; yet I think those things must be borne in mind, and we must impress upon our patients that the chronic belly becomes acute—not to frighten them into operation, but to impress the point that these chronic bellies become acute, and the mortality is high, and leave the history to do the rest.

For that purpose I called attention first to the chronic obstructed belly. Lane has written lots about it, and has come to the dietetic management of such cases. It will not cure them, but relieve by producing the proper flow of intestinal contents and eliminating the interference to a healthier action of the abdominal viscera, these measures will go far to prevent these cases from becoming acute. I thank you.

PROSTATITIS OF NONVENEREAL ORIGIN

Theodore Baker, Pittsburgh (*Journal A. M. A.*, Nov. 21, 1925, asserts that prostatitis of nonvenereal origin is much more common than is generally known. It represents between 15 and 20 per cent of all cases of this disease. Its recognition is important: (1) from the sociological and economic standpoint of the patient; (2) in its relation to prostatism, and (3) in regard to its etiology. Many cases are undoubtedly due to distant foci of infection, or as sequelae to the acute infectious diseases. Because of the obscure etiology of many cases, further study of this phase of the subject should be stimulated. Relapses are characteristic of the disease, these cases being more resistant to treatment than are those due to the gonococcus. Therefore, successful treatment depends on the finding and the removal of the underlying cause, if possible.

"Now that they have closed the saloons to save our boys and since they cannot close the garages to save our girls, they might at least close the side roads."

THE VALUE OF MEDICAL INSPECTION OF SCHOOLS

E. R. HAYES, M. D.,
Falls City, Nebraska.

In September 1915 we instituted our first medical inspection of schools in Falls City. Our plan was crude and the inspection very superficial, but it gave us a knowledge of the great number of defects existing among the students.

Our method was to engage a corps of four or five physicians—and have the pupils file past them, each physician to observe certain parts of the child's anatomy for defects. The inspection was made in two days and it is unnecessary to repeat that the examination was superficial when we consider that 1,000 students were examined in about five hours. All we were able to detect were gross defects, decayed teeth and hypertrophied tonsils. A report was made to the parents, of the defects found and recommendations made for treatment, but as we had no follow-up or checking system we were unable to tell how many defects were corrected—and the results of our efforts were unknown.

Some resentment was met on the part of parents — for our examination was so superficial and our findings so obvious that most of the defects reported were already known. As one woman wrote us, "You need not tell us that Willie is crosseyed, we know that, why don't you tell us how to keep him from wetting the bed?"

In the years 1915 and 1916 about all there was to our medical inspection plan were the superficial examinations on the first two days of the school year and the report to the parents of our findings—but it led us to realize the need of a more efficient health plan and medical supervision, which would extend over the entire school year.

In the summer of 1917 the board of education employed a physician to act as medical director and with his aid worked out the plan which, with few modifications, is still in effect, and supervises the health of the student body every day in the school year.

Our medical director is in no sense a school doctor. He is not in competition with the medical profession, but on the contrary aids it by instructing parents in the importance of having mild illnesses treated early and severe illnesses treated promptly and stimulates new business by urging the parents to have correctable defects corrected.

The director has full charge of all health problems within the school, and full authority to determine whether a pupil is physically able to attend. There are no lay committees to supersede the decision of the medical director on health matters and consequently no conflicting forces to obstruct the carrying out of health plans. At the beginning of the year the board of education adopts the policy and authorizes the medical director to put it into effect, he being held responsible for the results obtained.

I want to say here that the policy of lay committees dictating the acts of health departments should not be tolerated by the medical profession. If we are to expect satisfactory results from directing the health of groups, we must have full authority to work out the problems without hampering dictations from those untrained in health and hygiene.

Our program begins each year with a thorough sanitary survey of the physical plant of the school system and such improvements made to put the buildings in sanitary condition. These surveys are made periodically throughout the school year so the plant may be kept sanitary at all times. Next, the teachers are called together and by a few lectures, informed of our health program. They are instructed never to render an opinion on matters of health nor to presume to diagnose a condition, but whenever they notice a child who is not well, who is flushed, languid, having a noticeable cough or cold, inflamed eye, skin eruption or any other condition that would lead them to suspect illness, to immediately dismiss the child from school. The teacher is to assume no responsibility as to diagnosis or treatment of the case. The burden of treatment and proof that the child is not sick is put upon the parents and no child so dismissed can be re-admitted without a permit from the medical director.

In cases of question the teacher is instructed never to take a chance, but to send those questionably ill to the medical director, who after a more or less thorough examination disposes of the case in one of three ways. If the condition is contagious the child is excluded and a report sent to the board of health. If a non-contagious illness exists the child is sent home with a recommendation card advising the parents to call their family physician and if nothing is found the child is returned to school with the proper permit.

I might mention here that no child who has been out of school for three or more days, from any cause, is permitted to re-enter without a permit from the medical director.

Once each week every school room is visited by the medical director and the teachers report their absentees, have special examinations made of certain suspects, and take up such other health matters that have arisen within their rooms. Co-operation of the teachers is essential in putting over any health plan in schools for it is impossible for any medical director to supervise the health of 1,300 students without an organized teaching staff and their co-operation. This co-operation and the special examination of suspects I consider of as much value, if not more, in our health program, than the general examination made at the beginning of the school year.

Scarcely a day passes that some child is not excluded for a communicable condition. Think of the importance of this. It does not only mean that the early recognizition of the child's ill health, so that proper and immediate treatment can be administered, but it also means removing the source of infection from the school room and the prevention of a possible epidemic. In our last year we excluded 157 pupils having communicable disease and by so doing prevented the possibility of 157 epidemics.

Of the great number of conditions for which exclusions are made the greatest number unquestionably come from diseases of the skin. Scabies, impetigo and tinea head the list and these could largely be prevented by the thorough and frequent use of soap and water. It seems to me, that in this day and age we should have progressed to the extent that we should teach our children when and how to keep their bodies clean.

The National Council of Education in summing up the work of investigators, estimates that three-fourths or 75% of all the 23 million school children in the United States, have health defects which are actually, potentially injurious to them as prospective citizens.

In 1917 when we put into effect our present plan of health supervision the general examination revealed that 73% of our children had uncorrected defects—I use the term uncorrected, for we did not put into our figures the defects that had been corrected or those that were under treatment at that time.

At the beginning of this school year the same procedure of examination was gone through, and this, our ninth year of driving hard on the same subject brought us the reward of learning that we now have only 24% defective or less than one-third of the 75% we are entitled to have according to the National Council estimate. Of the 1260 students given the general examination this year 303 were found defective and the defects numbered 632, showing that one neglected defect is usually accompanied by another. The following is a list of the defects found:

Hypertrophied tonsils	128
Defective teeth	172
Enlarged thyroid	110
Defective eyes	34
Skin lesions	35
Defective nose	19
Deformed chest	21
Abnormal heart	16
Defective hearing	10
Nutritional defects	87

We have done away with the weighing and measuring tests on account of the time required to make them, and the inaccuracy of the scale. The number of nutritional defects is relatively small in our school and we believe we are able to detect the over and under weights by general observation, and save time.

It is impractical to include nutritional clinics in our health plan, at present, but we do furnish the obese and under nourished with diet lists when they are not otherwise under the care of their family physician.

It is interesting to note that 9% of our students have enlarged thyroids and 96% of the 110 cases existed among females. Considering the age of the students from 6 to 17 years I believe 9% goiters of sufficient number to warrant the administration of iodin to all as a preventive. A few years ago we took advantage of a smallpox scare and sent out a general order that all children should be vaccinated—and each year following have impressed the parents of the new pupils the importance of having this done. Our check this year shows 87% of the students have been successfully vaccinated.

The board of education this spring has officially approved the recommendation to administer toxin-antitoxin to all students and this fall the campaign will be started through the medical profession, board of health and medical director. Nothing yet officially has been done about the administration of scarlet fever toxin for active immunization, but it has been discussed and in due time I am sure will be ordered given.

As practically all epidemics have their beginning within the schools and on account of the close association of students and the danger of exposure to contagion, it behooves all of us to take advantage of our knowledge of preventive medicine and by vaccines and toxins immunize our school children against as many diseases as possible.

In order to determine how many of our students were placed in the proper grades and how many were doing the work they are capable of, we have included in our examination the Stanford revision of the Binet-Simon Intelligence Tests. These tests which have been given for three years, in the primary department, are not directed so much toward the knowledge ordinarily acquired at school, as toward knowledge obtained in every day life. Too much is not expected from these tests for we realize that at best they are only rough approximations, but our experience so far has led us to conclude that approximately 2% of our students are substandard in intelligence. These students should not be carried along with the other classes but as yet our school board has made no provision for their special instruction.

The value of our medical supervision plan can best be told by submitting the records of attendance obtained from our superintendent of schools:

September	97%
October	96½%
November	98%
December	95½%
January	96%
February	95%
March	97%
April	96½%

Our general average being 96 4-10% and in no month did we fall below 95% in attendance.

CONCLUSIONS

A proper health plan in school will:

1. Materially reduce number of defects found among students.

2. Stimulate parental interest in welfare of child.

3. Lessen morbidity by daily supervision of the child's health and by calling the attention of the parents to slight indispositions.

4. Aid the board of health in the prevention of and control of communicable disease.

5. Increase the percentage of attendance at school.

6. Carry the child through the dangerous school age, teach him the value of health, and the importance of periodic health examinations.

DISCUSSION

E. WILLARD POWELL, M. D., (Omaha): I want to discuss this paper, not because it is my particular line, but because we rarely hear a paper of this kind in this society, and because such papers are absolutely unselfish. It shows the Doctor is really trying to do something in his community for which he is not going to get pay; therefore, it is absolutely unselfish. The principle is right, in that he is trying to do something for his community, nor for himself, but for everybody else.

The only thing I have to criticise in the paper is this: Why do we constantly pick on the child? The child is not to blame. The source of this thing lies very often in the family.

I think the point taken of having a director in the community in which you live is good. I did not hear how you would have him selected. If it is going to be another political appointment, I am absolutely opposed to it. If you take five or six representative medical men in your community; let them represent a medical body, and out of that membership one man is selected who becomes the director—because it must be in the hands of one man who has authority, if you wish to get anywhere—I am for it. Then start some community center lectures for the father and mother. Teach them how to take care of their own bodies and their own teeth and sinuses; how to clean their own hands and bathe themselves. The child has then a living example at home to start with. Then go on with the child. If somebody will propose a scheme of this character, I think you will get somewhere. Everything that seems to be done is split in the middle. I may be wrong. I do not believe I am.

I have listened to health lectures and hygiene lectures for thirty years now, and I do not think we have gotten very far. We are constantly having that damnable thing—politics—come in, which upsets everything. In the rural districts I think you have a golden opportunity. I believe if you pursue that plan of a medical board, of which one member is elected chairman, and then have monthly inspections of the schools—the school houses, outhouses, and the inside toilet, or whatever it is—and everything else that pertains to this health question, then we will get somewhere.

I am glad to see Falls City is starting something along this line. Then let us take a little authority away from some of the visiting nurses, who sometimes recommend things they should not.

I thank you.

DR. E. R. HAYES, (closing): I think the selection of the medical director should not be political. He should be a man interested in child welfare and not in politics. It certainly should not be a purely political appointment.

I resent, to some extent, Dr. Powell's assertion that Falls City has "started something." I think we are the pioneers in this movement in the state. I believe we have had medical inspection as early as any place within this state, and ahead of a great many.

The plan adopted and carried out in a great many communities of having nurses determine whether the child is sick is fundamentally wrong, because a nurse is not trained in the diagnosis of disease. How is she able to determine whether a child has this or that disease? Certainly the supervision or direction or control of these things should be in the hands of qualified medical men.

PROPAGANDA FOR REFORM

Lactic Acid Milk.—New and Nonofficial Remedies brings out that there is considerable evidence in favor of the therapeutic value of soured milk — particularly of sour milk containing an abundance of living B. acidophilus. Whereas the administration of B. acidophilus has for its object the implantation of living B. acidophilus, there are reports which indicate that the administration of milk sugar may produce the be observed. The cause of the therapeutic effect is probably to be attributed not only same results through promoting the growth of aciduric bacteria normally present in the intestinal flora. (Jour. A. M. A., Nov. 14, 1925, p. 1578).

PROCEEDINGS, ANNUAL MEETING, NEBRASKA STATE MEDICAL ASSOCIATION, 1926.

HOUSE OF DELEGATES

First Session

Fontenelle Hotel, Omaha, Nebraska, Tuesday, May 11, 1926. One P. M. The House of Delegates was called to order by President H. J. Lehnhoff. Roll Call by Secretary Adams showed 45 members present.

It was moved that the reading of the minutes for 1925 be dispensed with. Seconded and carried.

It was moved by Dr. K. S. J. Hohlen that J. V. Beghtol, of Hastings, be elected President pro tem, and that the Secretary be instructed to cast the unanimous ballot. Motion carried. The Secretary cast the unanimous ballot for Dr. J. V. Beghtol as President pro tem.

Dr. Overgaard stated that inasmuch as the report of the Council had been published in the Journal, he would not read his report unless called for. Moved and seconded that the reading of this report be dispensed with. Carried.

Dr. W. B. Wherry read the Librarian's report which was referred to the Council.

Dr. Floyd Clark moved that the Librarian's report be accepted, and that the Council be requested to vote $75.00 to defer the expense of Miss Hillis. Seconded, carried.

The Secretary read the report on Medical Education.

Report of the Publication Committee was read and referred to the Council. Carried.

The report of the Committee of Public Policy and Legislation had been published.

The reports of the Committee on Care and Prevention of Contagious Diseases, was read and referred to the council. Carried.

The report of the Campaign Committee, also the report of the Public Activities Committee were read and referred to the Council. Seconded and carried.

Report of the Council on Medical Education was read and referred to the Council.

The report of the Delegates to the American Medical Association was read by Dr. R. W. Fouts. Moved and carried that the report be accepted.

Dr. Dunn spoke on the modification of the Narcotic Law, and also the coming importance of considering contract practice. He also emphasized the importance of State Associations using great care in selecting delegates. He believed that the state should send the same man to the House of Delegates each year. Seconded and carried.

The report of the Secretary and Treasurer were referred to the Council. Seconded and carried.

Dr. W. J. Davies read the following resolution:

"WHEREAS, It is becoming a common practice for various members of the Nebraska State Medical Association, in the treatment or operation of patients of various cults, to perform this service without the assistance of a regularly qualified physician or surgeon; and

"WHEREAS, It is the opinion of the members of the Dodge County Medical Society that such practice should be forbidden;

Be it therefore resolved, That the opinion of the Dodge County Medical Society that such practice should be communicated to the Nebraska State Medical Association, with a recommendation that a By-Law be adopted to the effect that if any member of any County Society of the State of Nebraska, shall in the future, treat, consult, assist, operate or perform diagnostic service for a member of any cult, without the assistance of a regularly qualified physician or surgeon, in cases where a regularly qualified physician or surgeon is advisable or necessary, or shall leave patient in charge of any member of said cult, but in no case shall the member of any cult have any part in the consultation or operation; said member so offending shall, on presentation of charges, and due investigation, be dropped from membership in his County Society in accordance with a procedure of his County Society, if found guilty under the terms of this by-law and shall not be reinstated under a year. After a year, he may be readmitted on written and formal pledge to observe this by-law in the future, with the unanimous vote of the governing body of the County Society, and a two-thirds vote of the members present at the meeting at which his application is presented."

The above resolution was referred to the Bureau of Legal Medicine and Legislation, and in a letter dated April 15, 1926, the executive secretary states that there is no reason the resolution cannot be adopted and enforced by the Nebraska State Medical Association. Moved its adoption. Carried.

Dr. Overgaard read the Memorial report, delegates standing during the reading. It was moved that a page be set aside for the departed Presidents and Vice President and an additional page for the dead members. Seconded and carried.

Dr. Claude Selby of North Platte spoke on the plan of Group Insurance for Members of the State Association, also spoke against malpractice. The purposes he gave for the Group Insurance, were as follows:

1. It may obtain an equal amount of protection for all members of the Association, at much less cost.

2. It would create an incentive to belong to the Association.

3. Through that we would have a more unified State Association, that is each man would have the same kind of a policy. It would prohibit and inhibit one man from entering suit against another.

4. Last year it was necessary to raise dues to help the defense fund, so by having such a policy, we could relieve the pressure on the defense fund.

Dr. Beghtol moved that a committee be appointed to investigate their report. This committee composed of five members, as follows: Dr. C. A. Selby, North Platte, Dr. William J. Douglas, Atkinson, Nebraska, Dr. Morris Neilson, Blair, Dr. R. B. Adams, Lincoln, Secretary, Dr. K. S. Hohlen, Lincoln. Seconded and carried.

The following request was read for the Women's Auxiliary by Dr. Overgaard:

To the House of Delegates, Nebraska State Medical Association:

The Women's Auxiliary, Nebraska State Medical Association, was organized last May in Lincoln. We now come to you for permission to complete the organization at this, our First Annual Meeting. With your permission, we will stress:

1. A spirit of friendliness among physicians' families.

2. An Auxiliary to every County Medical Society in the state.

3. Co-operation with the Anti-Tuberculosis Society.

4. A physical examination by every member of the physician's family on his or her birthday.

5. A copy of Hygeia in every Public Library and Rural School in the state.

Respectfully submitted,
Mrs. F. A. Long, Pres.
Mrs. Clarence Rubendall, Sec.-Treas.

Dr. A. P. Overgaard offered the following resolution:

Be it resolved, That the Nebraska State Medical Association hereby recognize and welcome the Women's Auxiliary of the Nebraska State Medical Association, at this, our regular meeting held in Omaha, May 11, 1926. Carried.

Dr. C. P. Fordyce submitted the following proposed amendment to the By-laws:

Amend Chapter X, Section II, Paragraph III, to read: The chairman of this committee shall receive $200.00 annually or as much as may be necessary for the office and traveling expenses. Lost.

Dr. F. A. Long introduced the following proposed amendments to the Constitution, and to the By-laws, and asked that they be allowed to lay over one year. Proposed amendment to the Constitution: Amend Article VIII, Section I and II, of the Constitution by striking out the phrase "A corresponding Secretary and Librarian." Proposed amendment to the By-laws: Amend Chapter VI of the By-laws by striking out Section V. Seconded and carried.

Dr. Francis Heagey of Omaha, spoke on the activities of the State Tuberculosis Association. He introduced the following resolution:

Whereas, The State Tuberculosis Association has been such a valuable factor in their work, that this Association go on record as indorsing the work of this Association. Carried.

Dr. Selby moved that a five minute recess be taken to decide on the members of the Nominating Committee. Motion carried.

The House was called to order. The following names were given for membership of the Nominating Committee:

1st District, Floyd Clarke.
2nd District, K. S. J. Hohlen.
3rd District, W. E. Shook.
4th District, J. D. McCarthy.
5th District, Morris Nielson.
6th District, J. C. Malster.
7th District, J. E. Bixby.
8th District, R. E. Kriz.
9th District, L. M. Stearns.
10th District, J. V. Beghtol.
11th District, C. F. Heider.

It was decided that the Secretary read roll of the Committee and that the name of each member be called.

Adjourned until 8 A. M., Wednesday, May 12. 1926.

FIRST COUNCILOR MEETING

8 A. M., May 12, 1926.

Members present: Drs. Cook, Overgaard, Potter, Plehn, Selby, Bryson, Tornholn, Fordyce, Preston, Fast and Douglas.

Dr. Clyde Roeder spoke on the needs of the Public Activities Committee. The Committee is running a movie at the local theatre, and wish to employ an expert on part time.

Dr. Roeder also spoke of the necessity of having the Committee from the same community so that they can meet frequently, and to have an auxiliary committee of all the County Secretaries to help the main committee.

An expense of $150.00 was turned in to cover the current expense. It was moved, seconded and carried, to thank Dr. Roeder for coming to the meeting and explaining the situation.

It was recommended to the House of Delegates that the Council indorse Dr. Roeder's movement and suggest the House of Delegates to do likewise. Seconded and carried.

Recommended that the following reports be published: Report of the Journal Committee, Medical Education, Public Activities, and of the Delegates to A. M. A. Moved, seconded and carried.

Also moved and carried that the report of the Sub-Committee be placed on file.

Discussion took place on Periodic Health Examination. It was the opinion of the Council that the House of Delegates indorse this and recommend that every County Society make the study of this subject. Carried.

Secretary asked for money to place A. M. A. manual in hands of every member.

Recommended that the following be elected to honorary membership: R. C. Talbot, Broken Bow, and Wm. M. Davis, 4834 So. 27th Street, Omaha.

HOUSE OF DELEGATES

Second Session

Fontenelle Hotel, Omaha, Wednesday, May 12, 1926. 1 P. M.

The House of Delegates was called to order by President pro tem Beghtol. Roll call by Secretary Adams, showed 46 members present. The minutes of the meeting of the House of Delegates was read by the Secretary. Approved.

Secretary Adams also read the minutes of the Councilor meeting. Approved.

Moved by Dr. B. F. Bailey that the resolution of Dr. C. P. Fordyce be the first order of business.

The following resolution was read by Secretary Adams, changing Chapter X, Section II to read: The Chairman of this Committee shall receive $200.00 annually or as much as may be necessary for the office and traveling expenses.

Moved by Dr. B. F. Bailey, that the resolution be laid on the table. Carried.

There being no new business, the House of Delegates took up the unfinished business.

Dr. F. W. Buckley spoke on the Universal Practice Act. He moved that the Legislative Committee be instructed to prepare a draft of the proposed enactment and submitted to the County Secretaries, so that they could fully instruct the legislators what to do. Carried.

Dr. Claude A. Selby, Chairman, read the report of the Committee asking to consider the Group Insurance plan, as follows:

To the House of Delegates, Nebraska State Medical Association:

Your committee reports favorably upon the Group Plan of Physicians Liability Insurance as submitted by the United States Fidelity and Guarantee Company of Baltimore, Maryland, and respectfully recommends that the House of Delegates empower this committee to enter into proper agreement with the above named insurance company, and present the following resolution:

Resolved, That the House of Delegates as the representative body of the Nebraska State Medical Association accepts the report of their committee as favoring the Group Insurance plan as submitted by United States Fidelity and Guarantee Company, and do hereby instruct agreement with said Company.

Be it further resolved, That a permanent committee consisting of three members be made. This committee to be appointed by the President and its duties shall be to carry on the work necessary and incident to the furtherance of the above named insurance plan. Respectfully submitted,

It was moved to amend the above resolution by striking out the name, United States Fidelity and Guarantee Company, and that no contract be entered into with a company not licensed in the state of Nebraska, and that the committee investigate the matter of Hospital Insurance. Amendment carried, motion carried.

Motion made to reconsider the motion passed relative to the Group Insurance. Motion to reconsider, lost.

Dr. Adams also read the following resolution:

Whereas, Preventive medicine is steadily advancing upon the field of ameliorative medicine, and will inevitably occupy more and more of this field, and,

Whereas, No part of the field of preventive medicine promises so much for the health of coming generations as does school medicine and,

Whereas, There is manifest on the part of the medical profession short-sightedness in allowing this field to pass under lay direction, as evidenced by the fact that already several school boards, among them, those of Rochester (N. Y.) Seattle, Denver and Lincoln, have put health education and supervision of school activities under lay direction, and

Whereas, Such action is prejudiced to the highest interest of the profession and is a menace to the health of the children, therefore be it

Resolved, That the House of Delegates of the Nebraska State Medical Association condemns such a policy, and urges the members of the Association to work in their respective communities for the rescinding or prevention of such action.

Moved that this motion be layed on the table. Carried.

The following Resolution was read by Dr. Adams, Secretary:

Whereas, A certain minimum of scientific knowledge is essential to the education and training of those who are to take care of the sick;

Whereas, The lack of such essential scientific knowledge is dangerous to society individually and collectively, irrespective of whatever line of treatment may be advocated or used; and

Whereas, Individuals are now licensed by the State to practice one form or other of the healing art, who have no suitable preparation in chemistry, physics, biology, anatomy, physiology and pathology, and

Whereas, Adequate understanding and recognition of disease is impossible without a minimum knowledge of such basis sciences, be it

Resolved, That the House of Delegates of the Nebraska State Medical Association endorses and pledges itself to the support of legislation along the following lines: 1. The establishment by law of a State Board of Examiners composed of suitably qualified lay members insofar as possible, by which all candidates for the practice of any form of the healing art shall be examined in the basic sciences. 2. The passing of an examination satisfactory to a STATE BOARD OF EXAMINERS FOR THE SCIENCES shall be made necessary by law before any candidate shall be permitted to take examinations before any of the existing State Boards of Licensure or before any Board of Licensure that may subsequently be established, for the practice of medicine or any other form of the healing art. Motion adopted. Carried.

Dr. John Buis, read the following resolution:

Where it is especially difficult to secure the evidence and conviction of the criminal abortionist and that for every victim for which he is punished, at least a score of cases go unpunished and thereby escapes the just penalty due him on account of the shame and disgrace surrounding the circumstance of the surviving relatives.

Whereas, One Doctor Mathews of Omaha has in our opinion been known to the Medical Profession, and the Laymen generally, as a professional abortionist, and has had his license revoked some fifteen years ago on account of committing these criminal acts, yet has continued this abnoxious practice to the detriment of society and contempt of the lawful constitutional authority.

Therefore, We the Medical Professionals of Nebraska are opposed to clemency in his case and recommend to the Honorable Board of Parole that he serve his term as meted to him by the constituted courts of this State of Nebraska,

And furthermore, That we wish to call the attention of the Department of Public Welfare to the fact that several other violators of this law, whether regular licensed practitioners, osteopaths and chiropractors are incarcerated at Lancaster at this time, whose license to practice has not been revoked by said Board.

That we the Medical Profession request said Board to act promptly and energetically, without further instructions or resolutions from either individuals or organizations in order that the fair name of Nebraska and the good people residing within its boundary be not further scandalized by continued disrespect of law and order and this especially heinous and dastardly crime of abortion. That the decent people of the state may know that the organized Medical Profession in the State of Nebraska deprecate the violation of the moral and legal law of the land.

That a copy of these resolutions be sent to his Excellency, Governor McMullen, Board of Parole and the Daily Press.

Moved that this resolution be adopted. Carried.

Meeting adjourned till 8 o'clock, Thursday, May 13, A. M.

SECOND COUNCILOR MEETING

5 P. M., May 12, 1926.

Meeting was called to order. Those present were: Dr. Douglas, Dr. Overgaard, Dr. Fordyce, Dr. Fast, Dr. Plehn, Dr. Tornholn, Dr. Potter, Dr. Preston, Dr. Cook, Dr. Selby, and Dr. Bryson.

Moved to recommend the appropriation for 1926, for: Public Activities Committee, $150.00 to defray the expense at the present meeting. Defense Committee $1.00 per member, additional for one year. $1000.00 for Public Activities Committee. Periodic Health Examination Manuals $150.00. Carried.

The following budget was moved:

Journal Fund	$1.50
Councilor Expense	$360.00
Campaign Committee	$500.00
Secretary Treasurer office	$800.00
Secretary's Salary	$600.00
Salary of Chairman, Defense Committee	$600.00
Expense Chairman Defense Committee	$200.00
Official Reporter	$150.00
Public Activities Committee	$1000.00
Miss Hillis, Librarian	$75.00

Railroad fare of delegates to A. M. A. and Delegates to Council on Medical Education, will be paid on proper presentation of amount. Also programme talent.

Dr. Czar Johnson appeared before the Council and spoke on the ideas of the Defense Committee to the effect that we should build up a plan of education to prevent malpractice suits.

Resolution offered by Dr. Preston:

Whereas, In the course of time and in the long continual service to the Medical Profession and especially to the State Medical Society, our beloved brother, Dr. A. S. von Mansfelde has become confined, frail and incapaciated for active service on the Medical Defense Committee.

And whereas, It is the sense of the Council that justice to all members of the Society requires a more active participation in the medical defense and to meet these requirements, it is the sense that with affection, respect and compassion for Dr. Mansfelde, the Council recommends that a new Chairman, Dr. Czar Johnson be elected to perform the duties formerly performed by Dr. von Mansfelde, that another member be elected to the committee and that Dr. von Mansfelde be elected an honorary chairman of the Defense Committee with a salary of $600.00 per year to continue throughout his life.

Moved to adopt this resolution. Carried.

HOUSE OF DELEGATES

Third Session

Hotel Fontenelle, Omaha, Thursday, May 13th, 1926. 8 a. m.

The meeting was called to order by Dr. Beghtol, president pro tem.

Roll call by Secretary Adams, showing 41 members present.

The minutes of the meeting of the House of Delegates, was read by Dr. Adams, Secretary, and approved.

The minutes of the meeting of the Councilors read by Dr. Adams. Approved.

The next order of business being the election of officers for the year 1927, the report of the nominating committee was called for. The Nominating Committee made the following report:

For president—Dr. H. E. Potter, of Fairbury; Dr. A. E. Cook, of Randolph; Dr. J. C. Waddell of Beatrice.

For vice-president of unexpired term for 1926—Dr. R. D. Bryson, of Callaway.

For vice-president regular nominees—Dr. C. P. Fordyce of Falls City; Dr. Isaiah Lukens of Tekamah.

Delegate to the A. M. A.—Dr. R. W. Fouts of Omaha.

Alternate to A. M. A.—Dr. J. M. Mayhew of Lincoln.

For Councilors—9th district, Dr. R. D. Bryson of Callaway; 10th district, Dr. W. S. Fast of Ingleside; 11th district, Dr. C. A. Selby of North Platte; twelfth district, Dr. F. W. Plehn of Scottsbluff.

Delegate to the Council on Medical Education of A. M. A.—Dr. J. S. Welch of Lincoln.

For Public Activities Committee—Dr. E. R. Hayes of Falls City for full term; Dr. C. C. Tomlinson of Omaha, for unexpired term.

For Publication Committee—Dr. W. O. Bridges of Omaha.

For Medico-Legal Defense Committee—Honorary Chairman, Dr. A. S. von Mansfelde, with salary to continue during life. Active Chairman Dr. B. B. Davies of Omaha.

Respectfully submitted,
Morris Nielsen, Chairman
K. S. J. Hohlen, Secretary.

The House of Delegates proceeded to ballot on the three nominees for President.

Dr. Potter received 31 votes, Dr. Cook 3, and Dr. Waddell 5.

Dr. Potter receiving the majority was declared elected President of the Nebraska State Medical Association for 1927. It was moved, seconded, and carried that Dr. Potter's election be made unanimous.

Moved that a committee be appointed to find Dr. Potter and bring him before the House of Delegates. Dr. Bryson and Dr. Bailey were appointed and brought Dr. Potter before the House. Dr. Potter made the following address:

President, Fellow Members: It is with a feeling of very much pride, it is with a feeling of very deep gratitude that I accept the fine honor you extended to me this morning, and in expressing thanks for the honor, I would say that I feel that there is no greater honor that can be extended to any doctor within the state as that of being elected president of our great State Medical Association. Gentlemen, I thank you.

Election for Vice-President was next in order. There being only one nominee for Vice-President for the unexpired term, it was moved and seconded that a unanimous ballot be cast for Dr. R. D. Bryson. Carried.

There being only two nominees for Vice-President, it was moved, seconded, and carried that a unanimous ballot be cast for Drs. C. P. Fordyce, Falls City, and I. Lukens, Tekamah.

There being only one nominee for delegate to the A. M. A. a motion was made to cast unanimous ballot for Dr. R. W. Fouts. Carried.

As there was only one nominee for each district, it was moved, seconded, and carried that the Secretary cast an unanimous ballot for Dr. R. D. Bryson of Callaway, for Councilor of the 9th District; Dr. W. S. Fast of Ingleside of the 10th District; Dr. C. A. Selby of North Platte for Councilor of the 11th District; and Dr. F. W. Plehn of Scottsbluff for Councilor of the 12th District.

There being only one nominee for the Delegate to the Council on Medical Education of A. M. A., it was moved, seconded, and carried that the Secretary cast an unanimous ballot for Dr. J. S. Welch of Lincoln for Delegate to the Council on Medical Education of A. M. A.

There being only one nominee for the Publication Committee it was moved, seconded, and carried that the Secretary cast a unanimous ballot for Dr. W. O. Bridges of Omaha for the Publication Committee.

It was moved, seconded, and carried that a unanimous ballot be cast for Dr. E. R. Hayes of Falls City for full term, and Dr. C. C. Tomlinson of Omaha, for unexpired term for the Public Activities Committee.

It was moved, seconded, and carried that a unanimous ballot be cast for Dr. B. B. Davies for Active Chairman, and Dr. A. S. von Mansfelde as Honorary Chairman for the Medico Legal Defense Committee.

There being no unfinished business the House passed to the next order of business which was the place of meeting for next year. The Secretary reported that he had received formal invitations from the Chamber of Commerce of Grand Island, from the County Society at Grand Island, and also a formal invitation from the Chamber of Commerce of Lincoln. Omaha then asked for the meeting next year. It was moved, seconded and carried that we proceed to choose the place of meeting by ballot. Ballots were cast for Omaha, Lincoln and Grand Island, Omaha receiving 18 votes, Lincoln 15, and Grand Island 13. There being no majority it was moved, seconded, and carried to vote on the two highest, the result of this ballot being Omaha received 22 and Lincoln 24.

It was moved and carried that Lincoln be made unanimous choice. Unanimously carried.

Dr. C. A. Selby moved that the chairman be accorded a vote of thanks for his excellent work. Carried.

Moved that the House of Delegates extend their appreciation to Omaha for the splendid entertainments. Carried.

Dr. J. D. McCarthy, Elgin, introduced a proposed amendment to the following article of the Constitution: Article VIII, Section III, which now reads, "Who is not in attendance upon that annual session" to read, "Not in attendance up until the time the Nominating Committee retires for session." Carried.

With this the House of Delegates adjourned.

SUPPLEMENTARY REPORT OF THE LIBRARIAN FOR THE YEAR, 1925.

The Library continues to grow in size and usefulness. But only a very, very small part of its growth is due to the support of the Association. The members of the state association should be anxious to keep the library where it is now—in the front rank of the libraries of the West.

The present active librarian for the library of the Nebraska State Medical Association and the College of Medicine Library, is Miss Madalene Hillis. She is asking for money for expenses toward a trip to attend the Medical Library Association meeting at Ann Arbor, Michigan, on June 9th-10th. The Medical Library Association runs an exchange of medical books and each year many are added to our library thru gifts from the exchange. The last meeting Miss Hillis attended was in Chicago, two years ago, and at that time she had fully 150 books given to her to fill in sets of journals and transactions. This year the meeting is very important. Next year our library will be housed in the new hospital wing, now being built at the College of Medicine. There are many problems to meet in making so big a change and first hand knowledge of how bigger and better libraries are equipped and arranged is indispensable. With a membership of 1,000 and dues totalling $8,000.00 it seems as though some money could and should be spent for our librarian. It is the only actual expense we assume for the support of our library and is small indeed in comparison with other societies in other cities. No money was paid out last year and only $50.00 was paid to Miss Hillis in 1924. The meeting in Ann Arbor will mean that the large libraries there and in Detroit and Chicago can be visited in this one trip.

Sir William Osler made an address when the Boston Medical Library was dedicated in 1901 and said in part:

"It is hard for me to speak of the value of libraries in terms which will not seem exaggerated. Books have been my delight these thirty years, and from them I have received incalculable benefits. To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all. . . . . For the teacher and worker a great library such as this is indispensable. They must know the world's best work and know it at once. They mint and make current coin, the ore so widely scattered in journals, transactions and monographs."

If you believe with Osler that study is essential in practice of Medicine, support your library and use it freely.

STATISTICS

55 doctors supplied with references and bibliograhies (outside of Omaha).

75 doctors (or more) used the library who are not connected with the College of Medicine staff.

36 journals sent the library currently from the State Medical Journal, Lincoln. Volumes all bound and shelved (at no cost to association).

215 journals subscribed for and coming currently.

12 books added to collection through Nebraska State Medical Journal office.

3,436 books added by University thru purchase and exchange.

In view of this I am most earnestly requesting that $75.00 be appropriated for Miss Hillis to be used in defraying her expenses, in part, to Ann Arbor to attend the meeting of Medical Librarians.

Respectfully submitted,
W. P. Wherry, Librarian.

REPORT OF DELEGATE TO COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

In strength and numbers the American Medical Association is doubtless the greatest organization of its kind the world ever knew. And this strength comes not alone from its numbers. Rather does it come from the final coordination of purpose and cooperation in effort. The activities of this great organization are diverse indeed and yet encompass one and only one great purpose—the health of the people. The constructive forces aimed at better hospital service and better trained medical men and women is but one of these activities. Thousands of other illustrations exist, and all are directly or indirectly concerned with the health of the people, and no nation has a greater asset.

The brief report here attempted is concerned with one of the A. M. A. activities for 1926—viz, the Council on Medical Education and Hospitals. It occurred as usual in Chicago, but one month earlier this year. My excuse for offering the report lies in the conviction that the proceedings of this Council are very valuable to every fellow of the Association and yet few of us ever become well informed. Bulletins are sent out, the Journal of A. M. A. carries certain reports and editorials, and your representative reports to the House of Delegates and the State Journal, but still relatively few get the gleanings.

As indicated by the name of the Council, you would expect to see at these congresses the leading educators of American medical colleges—hence presidents, deans and professors, likewise hospital directors and leading staff men. In the same Congress there are two or more sessions with State Boards and Public Health men providing the program. This gives an excellent opportunity for the presentation and discussion of inter-related problems of medical education, public health, licensure and hospitals. As one especially interested in the practice field of medicine, I notice each year a striking difference in the personnel of the participants and the character of the program, when compared to the general A. M. A. and other national meetings. All clinical presentations are conspicuous because of their entire absence.

A classification of this year's program, according to the leading topic, is as follows:

1. Saving of Time in Education.
   (a) In primary schools.
   (b) In secondary schools.
   (c) In medical schools.
2. A survey by the New National Commission on Medical Education.
3. Graduate work in Medical Education.
4. University Extension work in Medical Education.
5. Internship problems.
6. Individual vs. group responsibility in hospital staff work.
7. Problems of State Boards.
   (a) Foreign Medical Graduates.
   (b) Fraudulent Medical Diplomas.
   (c) National Board of Examiners.
   (d) Examination in Basic Sciences.

I will attempt to summarize in abstract the arguments presented in the discussion of these subjects.

First. Saving of Time in Education.

Saving of time in education was analyzed by such men as Professor Judd of Chicago University; Tory of Tulane; Bevan of Rush; Lyons of Minnesota University; and Mann, the Director of the U. S. Government Council on Education. It was contended that much time is being wasted in the primary grades. A useless repetition of the multiplication tables by advanced children, for example, is now practiced only in less modern schools. The accepted plan is to pass the child along by semester promotion, or oftener, according to his accomplishments, rather than by the rule of the average or slowest child in the class; also, to try to help him select, early in the grades, his probable life vocation. The European school child has done this for decades and as a result is ready for college work on an average two years earlier than our children have been.

In short, it means earlier selection work for the child and more coordination of work in primary, secondary and college schools, to the end that he has six years in primary grades, six years in junior high and high school, two years in college. This finishes his general college work at eighteen and he is ahead about two years for his medical education, or any other graduate work.

This modern method has met most resistance in the uninformed members of school boards and from many parents. It is the accepted method today.

Add to this the five-year system of college and medical work, with continuous application by the quarter system, with only short vacations, and a one-year internship, and our medical student graduates at about twenty-five years of age, instead of twenty-eight, on an average.

The Pusey idea of shortening the medical course is entirely abandoned. Everyone concedes the medical student's curriculum is too crowded and he must be given more time to use his five senses and think and read and conclude for himself, but his course per se is not to be shortened.

Second:

A special National Commission on Medical Education made a most interesting preliminary report. Its work pertains, not to medical schools and classroom work, but the problems and needs in the field of practice. It is approaching its problems as did the U. S. Government in its study of the industries at the outset of the war. The first analysis set up two problems:

1. What is to be done?
2. Who can do it?

The army and navy engineers told the government what munitions of war were needed and made estimates of probable quantity. With these specifications they went to various factories and determined who could do the job. The same rules applied to man power from doctor to mule driver.

So this medical commission has undertaken a very exhaustive survey to determine what the health needs are in this and that section of America; what specifications meet the present needs; and what will be the probable needs one or two decades hence. This is an entirely pertinent quetsion, else we cannot know how to train today our doctors of tomorrow. This commission is attempting to get a cross section of what the cause of disability consists, both from disease and accident, in order to acquire a truer idea of what the doctor's job really is. Can this be done with accuracy then, like the government war engineers, the correct specifications can be turned over to the educators, the manipulators of school schedules, the teachers and students of medicine themselves. This commission is now interrogating general practitioners in towns of fifty thousand and less, as to their experiences and beliefs concerning community health needs. They are interested in recruiting doctors for towns where a medical man is needed. They are studying the questions of elimination duplication of applicants for license, the question of licensing specialists, etc., etc. With all of this work heading up through this Council and the great American Medical Association, one can predict but a good end.

Third:

Graduate work in medical education in the U. S. A. has been an adventure but today it is succeeding. It may be considered to be advanced in two chief ways:

(a) The single researcher, working more or less independently. Most of the Rockefeller Institute graduate work falls in this class.

(b) The group of associated workers, whose efforts are collaborated in different departments of a large institution or university.

Ford, of Minnesota, who so ably presented this subject, naturally favored the latter way. He reasoned that a large university would more likely provide a large group of medical men who would give up practice on opinion for research. The university would provide the students properly prepared to follow this graduate teaching. Likewise, the hospitals, materials and equipment would here be available under common supervision. He advocated its head-up under the medical school faculty, with close control of registration and graduation. Moreover, medical science is but one of many and its coordination in the university with other branches of science is mutually helpful. Most certainly medical science has profited and almost depended on other branches of science for its advance in certain lines, for example the science of x-ray on physics; of chemistry on the chemical science; phychiatry on psychology; and applied anatomy on invertebrate anatomy, etc. Ford even threw out as a challenge to this Council as its job, the furtherance of the graduate school of medicine.

Fourth:

A somewhat new and unique departure of an educational kind has been undertaken by a few of our leading universities in their extension departments. The purpose is to carry to the people the fundamental facts of medical education. Just the plain medical truth about health matters without any attack on the cults. Being sponsored by the extension department of the university it is given creditable recognition and increasing attention. At once it is intimately linked up with the entire organized system of education of the state. Through this avenue not only the children and youth are reached, but High School superintendents, principals, teachers, parent-teachers associations, etc. furnish desirable teachers and speakers and local committees on arrangements. Its wholesome influences are felt not only in local health problems but in state legislatures when real medical problems arise. Representatives from every corner of the state will have among their number certain ones who have seen the light and know the truth. It has helped in Michigan and Minnesota.

The machinery of the organization is simple. The university calls to its aid the state medical association through its educational committee, the American College of Surgeons, the x-ray societies, the dental society and perhaps other organizations properly interested in community health problems. The pooling of meagre funds of each gives an aggregate sufficient unto the needs. Working through this agency a corps of volunteer speakers with needed equipment and exhibits is organized. Dates are arranged through civic clubs, P. T. A.'s, Chambers of Commerce, schools and other local bodies, and the medical lectures tuned to the respective audiences. Volunteer speakers are asked to repeat their lectures five times and accept the dates assigned by the extension department. These are selected locally, so far as possible, for reasons of economy, expediency and effect.

In Michigan, the work has grown so fast that full time secretaries are now needed. I am much impressed with the plan and have discussed it with the Deans of our medical colleges and recommended it to the Educational Committee of our State Association. I sincerely hope Nebraska's health problems may find as satisfactory a solution in this plan as Michigan reports.

Fifth. The internship problem.

As you know, the A. M. A. has attempted through its State Association hospital committees, to formulate an accredited list of hospitals suitable for the training of interns. Hospitals with less than one hundred beds are considered too small. There must be a staff and house organization not only for the suitable care of patients but for the proper teaching of interns. Many medical schools are now requiring this year of work and if the work is compulsory they feel responsible for the teaching ability of the staff as well as the availability of patients and proper housing.

The day is past when the work of an intern is primarily that of an orderly, or a technician or even a surgical assistant for the dollar getting doctor. Certainly he must do something of this and more. This year of his life is given to the application of theory—to the learning of the human side of practice. He must be impressed with the idea that he is now studying the patient, and not surgery, medicine or obstetrics. He must examine patients, write histories, progress notes, and learn to combine the science and art of medicine under the guidance and tutorship of carefully selected staff men. And unless you and I are willing to give this time and perfect our abilities accordingly, we have no right to expect our hospitals to be accredited for interns. Twenty-five to fifty beds per intern are the limits. A mixed service seems best. The quality of work is the best index to good intern service. This is often reflected in the ideals and character represented in the staff. Likewise the number of autopsies obtained by the Hospital and Staff is a good index.

At Johns Hopkins they get	98%
At Brigham Young they get	69%
At Presbyterian, Chicago they get	62%
At Pennsylvania General they get	50%
At Massachusetts General they get	36%
At Cook County, Chicago they get	20%
At Bellevue they get	only 20%

A low percentage may bespeak fear of a "show down" on the part of the attending man. More often it means the staff man has ceased to progress. He no longer recognizes the teaching values of an autopsy, much less his own limitations as a director of intern work.

The better medical schools are not depending alone upon our A. M. A. ratings. They have a veritable faculty detective system which not only helps the intern select a hospital, but audits his work through the year even if he is in the remotest corner of the country.

Sixth:

Individual vs. group responsibility in Hospital Staff work is a most natural question to arise at the close of a decade of hospital standardization work. Safer and better service to the patient has been the big decideratum regardless of expense. The human element of error when a man works individually, even in a perfected hospital environment, certainly exceeds that of working with frequent counsel. One readily concedes this if you classify x-ray findings and clinical laboratory reports as counsel. Now also it is advised by this Congress of the A. M. A. that this frequent counsel among staff members is so essential to the patient's welfare that major cases should be handled as a group responsibility. No life or death question for a prisoner at the bar is ever committed to the judgment of a single judge, but always to a group of carefully selected men. Why, then, should the life of a patient ever be committed to the judgment of a single doctor in a well regulated hospital—emergencies excepted.

Such a system of staff group responsibility will meet with more difficulties in hospitals with private patients, than with charity patients only. However, the correctness of the theory warrants its approach in practice. By grading up or perfecting the diagnostic and technical ability of each man permitted on the staff, a safe method would then be to permit him to remain the personal advisor of the patient, backed up by the staff council. It must not become a "buck passing game." Some one must be responsible. The personal service element is ever present. The patient must feel a certain doctor is his doctor. Such a system of group staff practice will depend upon much intellectual, sympathetic, co-operation and consideration on the part of each and every participant. I personally doubt if we are ready in Nebraska hospitals for more than frequent hospital staff consultation.

Seventh:

The newer problems presented by the Federation of State medical boards are always interesting.

a. Foreign medical graduates applying for license have greatly increased. In spite of sworn private translators and translations by the Council General's office, numerous mistakes are certain. Fraud is attempted. Much inferiority is present. Great delay is necessary and some injustice to the competent is natural. In one state at least, a year's attendance in a Class A medical school is now required. The present tendency to enact laws to exclude all would certainly work an injustice on some.

b. The problem of fraudulent medical diplomas and impersonation is always present. Missouri seems to be the greatest offender of late. It is the same old story of actually imitating and manufacturing diplomas or changing the name thereon, or of failing very largely to teach the advertised curriculum.

c. The National Board of Medical Examiners has now developed until it is recognized by thirty-four states. Its license to practice is recognized as the highest possible credential. There is a feeling also that the laws in most states should be so changed that medical educators could sit on these examining boards. It is pretty generally believed that they are by profession better fitted to judge of the applicants' preparedness than practitioners only.

d. In certain states (Wisconsin) there is a state board of examiners in the Basic Sciences. All individuals expecting to practice any type of the healing art must pass this board. It becomes, therefore, a splendid sifting committee for aspiring chiros and osteopaths and so renders a big service.

With all of this work headed up through the A. M. A., one can predict but a good end. Your delegate takes an infinitesimal small part in the proceedings. He is attempting to do some of this small bit, however, in returning, in this and other manners, the results of the Congress.

—J. S. Welch.

REPORT OF THE COMMITTEE ON JOURNAL AND PUBLICATION

The report of the financial transactions of this Committee for the fiscal year 1925 was published in the Nebraska State Medical Journal for February, 1926. It therefore seems a work of supererrogation to repeat the same in this report. A resume of the same, however, follows:

Direct Journal Receipts, 1925.

Advertising space	$4,362.09	
Share of Dues received	2,083.00	
Misc. income	297.48	
Total income		$6,742.57

Direct Journal Disbursements, 1925.

Publication expense	$4,361.35	
Salaries	2,400.00	
Misc. expense	44.46	$6,805.81
Excess of Disbursements over Receipts		63.24
Cash on hand December 31, 1925	$2,141.19	
Journal Fund investments	$3,609.08	

Since January 1st, 1926, another $1,500 has been invested.

You will have noticed that the actual expenses were $63.24 above the actual direct income for the year 1925. The wonder is, not that the income for 1925 did not meet the expenses, but rather, that the income was as large as shown. The several members of the Committee feel that the worst of the great depression is over, that we are on the rising tide and that advertising space will be in greater demand hereafter. The business manager thinks he can sense the greater demand since the beginning of the current year.

You will also have taken note of the investments of Journal Fund money. This fund has been created as a buffer against possible adversities. It is not intended at this time to have the Fund grow above about $5,000. In view of the fact that it has reached that amount, and the better prospects for advertising in the immediate future the Board decided at the annual meeting in January to reduce the amount asked from the General Fund for support of the Journal from $1.75 per member to $1.50 per member.

It is fitting to state at this time that with the publication of the June number, the Nebraska State Medical Journal will have rounded out ten years of existence and has probably become the most cohesive force in the Nebraska State Medical Association.

F. A. Long, Chairman.

REPORT OF PUBLIC ACTIVITIES COMMITTEE

The committee on public activities consists of five members. Their duties, as outlined by the house of delegates, shall be to cooperate in creating and maintaining a working organization with other prominent public welfare organizations of the state; to direct, manage, supervise and control all public activities as they may outline.

The prominent public welfare organizations of the state are located almost entirely within the two largest cities, Omaha and Lincoln. Cooperating with these organizations requires no little thought owing to the fact that the entire state outside of Omaha and Lincoln will not receive its due portion. The membership dues of the state society were increased only three dollars last year with the idea of placing this increased assessment in the hands of the committee on public activities and the medical defense fund. Unfortunately our secretary, Dr. R. B. Adams, informs me that the house of delegates did not impower him with the authority to turn over any money to this committee, hence we were left as we were last year. The duties of this committee are so important, that it must have funds to employ expert lay advice and help in order to place before the public, through various public health organizations, just what the public should know about the benefits to be obtained from the studies of the students of regular medicine. The public is becoming rapidly more interested in public health matters and seeks the unbiased truth. The profession can well afford to spend money on proper propaganda in order to present the subject of preventive medicine as well as it should be. Medical men must become teachers and not advocates if they do not want a severe reaction to their and the public's welfare.

The state societies of Michigan, Illinois and Texas are carrying on a very active campaign along these lines and this committee feels that it will be a wise plan to await their results, in order to benefit from their mistakes. If we are to have money to spend we desire to spend it as wisely as possible. Furthermore our own state university is making a special effort toward propagating public health welfare and cooperation on the part of our state society is to be hoped for.

The public wants public health propaganda for their own benefit, not the profession; they want comprehensive publicity and they can very easily misunderstand any public welfare efforts on the part of the profession. The idea of periodic health examinations, one of the greatest benefits from regular medicine, is looked upon by many laymen as something for sale by doctors of medicine.

Too many things should not be attempted at the same time. This committee advocates, above all: (1) Placing before the public the value of periodic health examinations and (2) the ways and means whereby health and disease may be maintained and prevented. If we concentrate on these two points, avoiding everything else, we will have accomplished a great deal.

This year at the Rialto moving picture theater, during the first two mornings of the meeting of our state society in Omaha, we will have shown moving pictures illustrating how man picks up infections and how they are prevented. If possible we hope to obtain films illustrating a few normal physiologic actions within the human body. The profession is urged to attend these demonstrations in order that we might obtain from the various members their ideas as to the value of these films.

During every future meeting of the state society, unbiased demonstrations before the public should take first place. Proper and abundant publicity should be given to these demonstrations in order to impress upon the laity that our meetings are primarily for them and not ourselves. We could cut out most of our scientific papers, probably with benefit to ourselves, and devote more time to discussion on how to advance in the altruistic practice of medicine. The medical man has always been supported by the public from the beginning of his studies until the end. Why should he not reciprocate and propagate the benefits of medicine primarily for the public, and secondarily for the profession.

The public activities committee should consist of members within a small radius so that they can meet frequently. The secretaries of each county society should be appointed, by the authorities of the state medical society, as an auxilary committee in order to keep their counties proportionately represented.

This committee asks the council to bear with them in their apparent inaction this year owing to the fact that it has made no radical and unwise moves in a new effort which the medical profession has never demonstrated itself as very efficient.

—C. A. Roeder, Chairman.

REPORT OF COMMITTEE ON MEDICAL EDUCATION AND HOSPITAL INSPECTION

Dear Secretary:

As chairman of the Committee on Medical Education and Hospital Inspection, allow me to render the following report for current year just closing:

There was a change in the membership, owing to the removal of Dr. Irving Cutter. Dr. E. L. MacQuiddy, of Omaha, took his place.

During the year the committee has been asked to inspect St. Catherine's Hospital at Omaha and Wise Memorial at Omaha, and the Lincoln General Hospital at Lincoln. It has re-inspected the St. Elizabeth Hospital at Lincoln. Complete detailed questionnaire reports have been sent to the central committee at Chicago.

Your committee has visited several other hospitals in a semi-official way without making any detailed report. There is now a ruling by the American Medical Association to the effect that no hospital with less than one hundred beds should be accredited for internship work. This involves in a retro-active way one hospital which has for years been on the accredited list, namely the Clarkson Memorial at Omaha. Dr. Colwell, Chairman of the Board, informs your committee that he makes this rule retro-active only in certain cases where it seems absolutely necessary. If the hospital is on a high standard and has a fair promise of shortly reaching the one hundred bed capacity, it is not taken from the accredited list. He informs your committee that Clarkson Hospital will remain on this list, at least until 1927.

Certain other hospitals are about to be inspected. The Swedish Immanuel at Omaha has requested an inspection within the next few weeks. Their capacity is now above the required one hundred beds, and this work will doubtless go forward in the near future.

This work requires careful inspection and tabulation of facts, and your committee has spent much time in the above work. In general it may be said that we believe this has a wholesome effect on all hospitals. Many of the schools are requiring an internship year before their final diploma is granted. These Colleges do not depend entirely upon the rating established by the American Medical Association, but it is used extensively. Whether the hospital expects to use interns in this capacity or not, such a rating seems to serve as a stimulus for better staff organization, better record making, better laboratory and operating pavilion work, and, therefore, better service to the patient.

Respectfully submitted:
J. S. Welch, Chairman.
Approved: E. L. MacQuiddy.
F. W. Heagey.

REPORT OF DELEGATES TO THE A. M. A.

Convention Report.

The Sixty-seventh Annual Session of the American Medical Association, held at Dallas, Texas, April 19-23, 1926, was attended by about 4,200 physicians, slightly more than half of whom were from Texas and Oklahoma. Thirty-nine physicians registered from Nebraska.

The House of Delegates convened on the morning of the first day. The Scientific sessions did not start till the 3rd day, the first two days being given over the clinics and clinical discussions and motion picture presentations of scientific subjects.

The first session of the House of Delegates was occupied with the addresses of the Speaker of the House, Dr. Fred C. Warnshuis of Michigan, President Wm. D. Haggard, Nashville, Tenn., and President-elect Wendell C. Phillips of New York.

The Speaker's address stressed the responsibility of the delegate, commended the work of the Board of Trustees and National Association officers and urged a greater activity on the part of competent societies in acquainting the public with the aims and ideals of the medical profession. Brief mention was made to State Medicine and contract practice, calling attention to the fact that the policies of the Association had been definitely enunciated and set forth and suggested that some disciplinary measures be formulated to command compliance with the enactment of the Association along this line.

A resolution dealing with the contract practice phase of the subject was later introduced by A. D. Dunn of Nebraska calling for an investigation and a report with recommendations by the Judicial Council. The matter is now in the hands of the Judicial Council awaiting its report at the next annual meeting.

The address of President Haggard stressed the importance of the Association activity in their effort to popularize the periodic health examination of the apparently healthy and of its inestimable value to the public and profession, if properly instituted and executed. He recommends "a strong active committee in each County Society on periodic health examinations" whose function is to inaugurate, supervise and perpetuate this work by means of educational campaigns and other means or arousing public interest.

President-Elect Phillips in his address reviewed the world progress of scientific medical discoveries and attainment for the past few years and pointed to the fact that this country was now leading in this field. He likewise endorsed the scheme of periodic health examinations and recommended that "an intensive survey of the general subject of public health examination be inaugurated."

Various committee reports were presented and disposed of.

Under new business, a resolution was introduced proposing the shortening of a medical course one year by giving credit for work done during summer months.

Another matter of interest was a resolution calling for the appointment of a committee to investigate and report on the feasibility and advisability of establishing a home for indigent and incapacitated physicians.

A resolution pertaining to expert opinion evidence was presented and adopted, favoring the use of experts appointed by the court and that they be allowed to present a written report or opinion based on their examination of the case in question and not on a hypothetical question, and that the fee should be fixed by the court and taxed as a part of the cost of the case. After some discussion in the Committee of the Whole and as a case is now pending in the Supreme Court, the decision of which may materially affect the status of physicians with reference to the quantitative limitation features of the National Prohibition Act, this question was deferred awaiting the court decision.

Many other unimportant resolutions of which no reference will be made, were introduced and disposition made.

Attention should be called to our State Association members and component County Societies relative to Fellowship in the A. M. A. and the prompt payment of the Annual Dues. It is estimated that it costs not less than one dollar per member to reinstate those who have allowed their membership to lapse.

The American Medical Association has 91,792 members, of which 58,681 are Fellows. Membership in the local county society automatically carries membership in the State and American Medical Association. Fellowship in the American Medical Association is obtained only by application on the prescribed form and the payment of $5.00 which is the subscription to the Journal. This is necessary for any participation in the Scientific assemblies or work of the Association.

The Scientific and Commercial exhibits were on a par with previous years. Mention should be made of the splendid Paleoentological exhibit of Drs. F. B. Young and H. L. Cooper of Gering and Scottsbluff. This exhibit compared favorably with others, and attracted much attention and comment.

Dr. Jabez N. Jackson of Kansas City was chosen President-elect and Washington, D. C., selected as the meeting place for 1927.

Respectfully submitted,
R. W. Fouts,
A. D. Dunn.

HOUSE OF DELEGATES

Record of Attendance

Adams—J. V. Begthol	p	p	p
Boone—F. M. Barnes	p	p	a
Box Butte—C. E. Slagle	a	a	a
Buffalo—L. M. Stearns	p		a
Burt			
Butler			
Cass			
Cedar-Dakota-Dixon-Thurston-Wayne—John Buis	a	p	p
Chase-Dundy-Hayes-Hitchcock			
Cheyenne—A. E. Hedlund	p		p
Colfax—S. B. Koory	p	p	p
Clay—W. L. Elwood, W. H. Gibbon	a	a	a
Cuming—H. W. Francis	p	a	p
Custer—C. D. Spivey	a	a	a
Dawson—J. H. Fochtman	a		a
Dodge—W. J. Davies	p	p	p
Fillmore—J. Bixby	p	p	p
Franklin—H. C. Smith	a		p
W. J. Deavers	a	p	a
Furnas			
Gage—F. W. Buckley	p	p	a
J. I. McGirr			p
Hamilton—Rachel M. Cooper	a	p	p
Hall—L. Phelan	p	p	a
Harlan—R. H. Kerr	a	a	a
Holt and Northwest—R. E. Kriz	a	p	a
Howard—A. H. Holm	a	a	a
Jefferson—H. E. Harvey	a	p	p
Johnson—A. P. Fitzsimmons	a	p	p
Kearney—A. Marstellar	a	a	a
Keith-Perkins			
Kimball			
Knox			
Lancaster—K. S. J. Hohlen	p	p	p
Geo. Covey	p	p	p
A. D. Munger	p	p	a
Lincoln—Geo. B. Dent	a	a	a
Madison—J. D. McCarthy	p	p	p
Merrick			
Nance—Homer Davis	p	p	p
Nemaha—B. F. Smith	p	p	a
Nuckolls			

Omaha-Douglas—Warren Thompson	p	a	a
Floyd Clarke	p	p	p
A. R. Knode	p	p	p
A. B. Hamilton	p	p	p
J. M. Duncan	p	p	p
F. W. Heagey	p	p	p
J. F. Langdon	p	a	p
Otoe—W. D. Gibbon	p	a	p
Pawnee—Paul J. Flory	a	a	a
Phelps—Rachel Long	a	a	a
Platte—J. E. Meyer	p	p	a
Polk—J. C. Malster	p	p	p
Red Willow—J. M. Willis	p	a	a
Richardson—W. E. Shook	p	p	p
Saline—H. W. Quirk	a	a	a
Saunders			
Scottsbluff—A. L. Cooper	a	p	p
Seward			
Thayer—F. A. McGrew	a	a	a
Valley			
Webster—Robt. S. Martin	p	p	p
York—F. S. Morris	a	a	a
Washington—J. V. Hinchman	p	p	a

COUNCILORS

A. P. Overgaard	p	p	p
H. J. Lehnhoff	p	a	a
C. P. Fordyce	p	p	p
A. E. Cook	p	p	p
S. A. Preston	p	a	p
Frank Tornholm	p	p	p
H. E. Potter	p	p	a
W. J. Douglas	a	a	a
R. D. Bryson	p	p	p
W. S. Fast	p	p	p
C. A. Selby	p	p	p
F. W. Plehn	a	p	p

OFFICERS

President, H. J. Lehnhoff	p	a	a
Vice-President, E. O. Weber	a	a	a
Secretary-Treasurer, R. B. Adams	p	p	p
Librarian, W. P. Wherry	a	a	a

EX-PRESIDENTS

M. L. Hildreth	a	a	a
A. S. von Mansfelde	a	a	a
J. E. Summers	a	p	a
W. O. Bridges	a	p	p
A. R. Mitchell	a	a	a
H. M. McClanahan	a	a	a
A. E. Jonas	a	a	a
F. A. Long	p	p	p
Harold Gifford	a	a	a
L. M. Shaw	p	a	a
P. H. Salter	a	a	a
J. P. Lord	a	a	a
I. N. Pickett	a	a	a
J. P. Gilligan	a	a	p
E. W. Rowe	a	a	a
W. F. Milroy	a	a	a
C. L. Mullins	a	a	a
J. M. Banister	a	a	a
H. W. Orr	a	p	a
M. S. Moore	a	a	a
B. B. Davis	a	p	a
B. F. Bailey	p	p	p
Morris Nielsen	p	p	p
Palmer Findley	a	a	a

CEREAL GRUEL FEEDING

Fifty difficult feeding cases (out of 535 new entrants) in which cereal gruel feedings were given after from two to six weeks on various other feedings, with no gain in weight there being even a loss in some instances and a very poor gain in the majority, are reported on by O. E. Chase, Chicago (Journal A. M. A., April 18, 1925). With but four exceptions in the whole series, no starch was found in the stools, and those exceptions showed 0.11, 0.025, 0.15 and 0.43 gm. The stock formula was whole milk to the amount of 100 c.c. per kilogram of body weight, with an equal amount of water before 6 months, and 16 gm. of farina, with the farina gradually increased to 48 gm. up to 6 or 7 months. This was all cooked together in a single boiler for fifteen or thirty minutes. The evaporation loss was made up after cooking by the addition of water to the amount required, after which from 20 to 32 gm. of sucrose was added, or 48 to 80 gm. of dextrimaltose, and the whole amount divided into five bottles for the day's feedings at four hour intervals. To illustrate: A child 4 months old, weighing 4,600 gm., was given 450 c.c. of milk in twenty-four hours, diluted with 450 c.c. of water, and 16 gm. of farina added, cooking this for fifteen minutes in a single boiler, and adding enough boiled water after cooking to make a total of 900 c. c. To this was added 20 gm. of sucrose and the mixture divided into five bottles of 180 c.c. each. The milk and cereal were increased as the weight advanced, the milk after 5 or 6 months gradually replacing the water, until at 11 or 12 months, whole milk was given. This milk cereal and water mixture was thin enough to be taken through the ordinary rubber nipple, with perhaps some increase in the nipple opening, and there was an equal amount of cereal in all the feedings. In most instances the cereal used was farina, except when constipation was present, then oatmeal was used, at least a part of the time. There was no age limit. The cereal was used with premature infants and from 1 month of age. The outstanding features noted in this series were the uniform gain in weight, especially in the marasmic child. The change from the pale, weak, listless, poorly nourished child to one with a good pink color, firm and abundant tissue turgor, splendid muscular development, proper bone calcification, a happy comfortable disposition and a proper gain in weight. As a routine measure, these children all received phosphorized cod liver oil and orange juice or raw tomato juice.

NO SUBSTITUTE FOR THE HUMDRUM QUALITIES

There can be no substitute for the world-old, humdrum, commonplace qualities of truth, justice and courage, thrift, industry, commonsense and genuine sympathy with and fellow-feeling for others.—Theodore Roosevelt.

In Memoriam

About us, wheresoe'er we tread
Hover the spirits of our dead;
We cannot see them as we could
In bygone days, when near they stood
And shared the joys and griefs that came,
But they are with us just the same,
They see us as we plod along,
And proudly smile when we are strong,
And sigh and grieve the self-same way
When thoughtlessly we go astray.
—Edgar A. Guest.

PORTER F. DODSON,

Vice President-elect, Nebraska State Medical Association, 1926. Died, Wilber, Nebr., November 14, 1925.

HAMILTON B. LOWRY,

President, Nebraska State Medical Society, 1893-1894. Died, Lincoln, Nebr., May 21, 1925.

FREDERICK D. HALDEMAN,

President, Nebraska State Medical Society, 1896-1897. Died, Berkeley, Calif., June 11, 1925.

* * *

F. H. Milliner	Died April 28, 1925
Uriel H. Squires	Died June 20, 1925
James S. Foote	Died June 30, 1925
Elmer J. Updegraff	Died July 9, 1925
Jennie Belle Rozell	Died July 22, 1925
Seth W. Dodge	Died Aug. 2, 1925
Charles F. Ballard	Died Aug. 17, 1925
Arthur C. Rumery	Died Aug. 25, 1925
James C. Hay	Died Oct. 12, 1925
Zadok T. Daniel	Died Oct. 20, 1925
Ralph W. Murray	Died Oct. 31, 1925
G. A. Birdsall	Died Dec. 17, 1925
Edwin W. Martin	Died Jan. 27, 1926
James S. Loney	Died Feb. 17, 1926
John Henry Fochtman	Died March 13, 1926
Minor Morris	Died March 22, 1926
C. E. Vandiver	Died March 26, 1926
W. R. Peters	Died April 16, 1926
Patrick, J. Flynn	Died April 5, 1926

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Vol. XI July No. 7

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Dr. R. B. Adams, Lincoln, Secretary-Treasurer	1927
Dr. W. P. Wherry, Omaha, Librarian	1927

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Dr. W. S. Fast, Ingleside	1929
Dr. C. A. Selby, North Platte	1929
Dr. F. W. Plehn, Scottsbluff	1929
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Dr. C. P. Fordyce, Falls City	1927
Dr. A. E. Cook, Randolph, Chairman	1927
Dr. A. E. Cook, Randolph, Chairman	1927
Dr. Frank Tornholm, Wahoo	1928
Dr. Frank Tornholm, Wahoo	1928
Dr. H. E. Potter, Fairbury	1928

DELEGATES TO A. M. A.

Dr. A. D. Dunn, Omaha	1927
Dr. R. W. Fouts, Omaha	1928

DELEGATES, COUNCIL ON MEDICAL EDUCATION, A. M. A.

Dr. J. S. Welch, Lincoln	1927

MEDICO-LEGAL DEFENSE COMMITTEE

Dr. A. S. v. Mansfelde, Ashland, Honorary Chairman	
Dr. B. B. Davis, Omaha, Chairman	1929
Dr. Czar C. Johnson, Lincoln	1928
Dr. R. B. Adams, Lincoln, Secretary	1927

Note: In case of suit notify secretary at once.

WILLIAM OSLER, CLINICIAN

To read the life of Sir William Osler, by Harvey Cushing is an entrancing diversion, and a mere glimpse at the career of this most wonderful man of two continents must be an inspiration to all.

William Osler, youngest son in a family of nine children, was born in the village of Bond Head, Tecumseth county, Upper Canada, July 12, 1849, of English parentage, his father having been sent from England to Canada, a missionary of the Anglican church.

Early in boyhood he was sent to boarding school where he became interested in nature study and became an all-around athlete. He was next sent to Trinity College, Toronto, with the idea of studying Theology, but in the second year, he determined to study Medicine. Microscopy interested him intensely. He did more dissecting than his fellow students. Here he discovered the *trichina spiralis* in its capsule and thus early became interested in the study of entozoa.

We next find him attending McGill Medical School, Montreal, where he was graduated in 1872. He then went abroad, spent 17 months with Burdon Sanderson at the University College, London, whom 34 years later he succeeded at Oxford. He spent two months with Virchow in Berlin and two months at Vienna. Returning to Montreal he was made Lecturer on the Institutes of Medicine in 1874 and the next year was made full Professor in charge of the department. He introduced clinical microscopy at McGill, became Pathologist to Montreal General hospital in 1876 and was Physician to the same hospital from 1878 to 1883. During these years he made intensive studies on cerebral localization and on endocarditis. During this period he made four trips abroad; in 1884 spent 6 months in Europe studying Bacteriology. While in Europe on this mission he was offered the Professorship of Clinical Medicine at the University of Pennsylvania to succeed William Pepper. So unsophisticated was he of the impression he had made on North American Medicine that for a time he thought the offer a practical joke perpetrated by one of his friends to repay him for some of his own waggishness, for Osler was somewhat given to playing practical jokes. He took up his work at the University of Pennsylvania in October, 1884 at the age of 35. At this time the University hospital had no microscope, except Osler's. He at once established a clinical laboratory and plunged into the study of pathology. He became attached to Blockley hospital where opportunity for the study of malaria was exceptionally good about the time Lavaran announced the discovery of the plasmodium as the cause of malaria, which Osler at first doubted, but soon demonstrated to his own satisfaction. He also became a part of the service at the Infirmary for Nervous Diseases. During these years he did an immense amount of writing for medical journals without aid of stenographer or typewriter. His informal lectures, in contrast to the polished declamations of Pepper and Stille, were at first the subject of some unfavorable comment, but when the students came in contact with Osler in the wards for bedside instruction, their eyes were opened for this was an undeveloped feature in the University. While at Philadelphia he was one of the organizers of the Association of American Physicians.

Having been offered the headship of the department of Internal Medicine at the new Johns Hopkins hospital at Baltimore, with its two and one-half million dollar endowment, he went there in 1889, then forty years of age. He organized the clinic and in doing so brought to Baltimore an array of outstanding young talent never excelled in hospital organization. In 1891 he published his Practice of Medicine the royalty from which brought him a fortune. He married in 1892 Mrs. Grace Revere Gross, widow of the late Dr. Samuel W. Gross of Philadelphia. During the 15 years he was at Johns Hopkins he not only did a vast amount of research work and writing, but he placed his stamp on Johns Hopkins and on American Medicine as no medical man has ever done.

At the age of fifty-five he was tendered the position of Regius Professor of Medicine at Oxford University, England, which he accepted and went to England in 1905. His activities continued but the position required less strenuousness and this seems to have been the deciding factor in accepting the post. His impress on English medicine was notable. Honors were showered upon him, among them a baronetcy. He made six trips to America after he took up his work at Oxford, spent a winter in France and took a trip to the Nile. He was intensely interested in the medical problems of the war and gave of himself freely for the cause.

He developed pneumonia from which he died December 29, 1919.

Thus passed away one of the greatest if not the greatest all-around research worker, teacher and clinician, in Medicine.

PERIODIC HEALTH EXAMINATIONS

During the month of June every member of The Nebraska State Medical Association received a copy of "A Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons." This manual was worked out by a special committee selected by the American Medical Association. This committee spent a great deal of time in the preparation of the manual and as a result it is an excellent one. The program of the American Medical Association, to educate the laity to the good to be obtained by periodic examinations, has been in preparation for a long time, and is now under way. Several states have been working with it during the last winter, and every state should adopt this program. Read your manual carefully and become familiar with it. Have your examination blanks ready, and begin talking the need and good of such examinations at every opportunity. Start the campaign by being examined yourself and having your family examined. The slogan of the American Medical Association is: "Be examined on your birthday."

—R. B. Adams, Sec.

THE PREVENTION OF MALPRACTICE

A suit for damages for alleged malpractice is a spectre which the doctor has never been able to accept with equanimity. To meet, or rather to combat this, the State Medical societies in thirty-one states provide some form of medical defense for alleged malpractice.

California and North Dakota, after providing medical defense for several years, have discontinued it.

Individual liability insurance has become universal. The present function of defense societies is, therefore, largely to defend the professional honor of the member.

In Nebraska and some other states, where medical defense is afforded, the State society defends where no insurance is carried and cooperates with the insurance company in defense of the individual member if liability insurance is in effect.

During the year 1924, 13 members referred demands to the Nebraska State Medical Association, one member referring two claims. No claim was withdrawn or compromised before the suit. Thirteen suits were filed, ten were defended by the Association. Of the suits defended one was withdrawn and compromised before the verdict. Five verdicts were rendered for the defendant and one for the plaintiff in the amount of $5,000.00.

During the year 1925, five suits were filed and only one verdict for the plaintiff was obtained. This sum, however, was $5,000.00.

Notwithstanding that great progress has been made in the field of preventive medicine. I have been unable to find any organized educational program for the prevention of alleged malpractice. The well established doctrine that testifying against a brother physician is a fraternal and ethical misdemeanor, and weekly abstracts of court decisions bearing upon the subject of malpractice published by the Journal of the American Medical Association are post mortem examinations rather than preventive medicine.

There are about 2,000 physicians in the State of Nebraska. Approximately 1,300 are members of the Nebraska State Medical Association. Fourteen years ago the society created a Medical Defense Committee, authorized a yearly membership assessment and retained an attorney for the purpose of defending its members in alleged malpractice suits.

The creation of the Medical Defense Committee marked a radical departure from long established customs of the medical profession and added to scientific and purely professional activities, sociological and economic problems. I assume that the purpose of the defense committee, as conceived and instituted by the medical society, was mutual protection and assistance in the event of unavoidable misfortune from unwarranted prosecution for alleged negligence or malpractice instigated by malicious, ignorant or selfish individuals. I assume that experience had taught those who were instrumental in the foundation of the defense committee that the public is frequently careless in its acts and speech, often indifferent to medical problems and that it and also the medical profession may harbor individuals who are malicious or avaricious. If my assumptions are correct, there is a legitimate reason for maximum efficiency without loss of the attributes of the profession.

In the past, active defense of malpractice suits has been the only function of the committee. I admit the necessity of efficient defense, but here, as elsewhere, an ounce of prevention is better than a pound of cur.

The causation of suits for malpractice may be placed in one or more of the following classes:

1st. Malicious, either personal or professional, for personal, professional or financial gain.

2nd. Circumstantial, wherein a combination of circumstances, misunderstanding or perversity of physical laws or the laws of health are contributing factors.

3rd. Comparative, wherein both the physician and the patient contribute through carelessness, ignorance, indifference, misunderstanding or physical unbalance.

4th. Judgment, wherein the elements of the case are materially the result of the judgment used and the physician is not infallible.

5th. Inexcusable, where, because of incompetence, negligence, indifference or unwarranted treatment, disaster results.

The laws of Nebraska governing malpractice provide reasonable protection and the courts have never required the impossible nor more than is the custom in the locality in which the physician practices.

Sometimes it is difficult to determine the prevailing custom. This lack of definiteness, when it exists is an open invitation to malpractice suits and a most serious condition in the face of legal difficulties.

A reasonably well standardized technique and treatment in each locality for (1) fractures, (2) obstetrics, (3) the use of electrical apparatus, (4) surgical operations, (5) medical therapy of infectious disease, (6) intravenous and new unofficial drugs, (7) new and unofficial diagnostic reagents should be adopted. This uniformity will, to a limited degree, interfere with personal initiative, but it will at the same time safeguard the public and the profession.

Written records of clinical history, physical and laboratory examinations, treatment and charges should be the inflexible rule. This does not require a voluminous document. Precise accurate notes take but little time and space and are extremely valuable. The practice develops accuracy, concentration, prevents neglect and omissions, acts as a barometer in the treatment, has an excellent psychological effect, and is a sheet anchor in malpractice suits.

Consultations are a protection. They distribute a responsibility, prevent mistakes and omissions, develop *esprit de corps* and prevent malpractice suits.

Disproportionate fees for apparently the same relative value of work and excessive fees for incompetent work causes dissatisfaction and is, in many instances, the primary cause of malpractice suits.

A reasonable uniform schedule of fees adopted by common consent (not by society legislation) should be instituted in each Councilor District.

Silence prevents malpractice suits. This cannot be emphasized strongly. A quiet, prudent, discreet, organization is effective.

The Nebraska State Medical Association is the first to inaugurate a comprehensive prevention of malpractice campaign and if the rank and file of physicians will give their cooperation, every Councilor District will be in the roll of "no suits" for 1926.

—Czar C. Johnson, Medical Councilor.

TECHNIC OF USE OF REMOVABLE RADON SEEDS IN CARCINOMA OF THE TONGUE

Joseph Muir, in *Annals of Surgery, May, 1926, Vol. LXXXIII, Page 598,* describes a new technique of radium therapy in lingual carcinoma which offers a practical means of irradiating even the most inaccessible tongue lesions. This is accomplished by the implantation of removable platinum radon seeds. As the methods of treatment heretofore used have always proved unsatisfactory, this article is of especial importance from a clinical standpoint.

The various methods by which lingual carcinoma has previously been treated are discussed and their advantages and drawbacks considered. Imbedding of bare tubes according to Janeway's method affords an even distribution of radiation, but causes necrosis which is invariably followed by sloughing and may even induce unavoidable fatal hemorrhage. If screened seeds are used, necrosis is avoided, but they are objectionable because they must remain in the tongue as foreign bodies. The platinum needles advocated by Regaud also obviate necrosis and can be removed when radiation has been accomplished, but proper distribution of these applicators is very difficult; they cause too much trauma; and above all, they are hard to immobilize and cannot be placed upon the posterior dorsal surface of the tongue.

The method offered in this article obviates all these difficulties, while retaining every desirable feature. The seeds are completely screened with platinum, thus doing away with necrosis and sloughing; they are easily withdrawn after adequate dosage has been delivered, so that they do not remain in the tissue as foreign bodies. These seeds can be placed in any position required, just as readily in the hitherto inaccessible "root" of the tongue, as in more favorable positions. The article is profusely illustrated, demonstrating the exact method of approach to these inaccessible lesions.

The growth is first carefully palpated, and the number of seeds required determined according to its depth and surface extent. When a seed has been placed in the desired position, the attached thread is left protruding from the point of entry, where it is cut off so as to leave just enough to be readily grasped with forceps at the time of removal.

The entire treatment causes no pain, and but slight inconvenience to the patient; and when skillfully performed under proper aseptic precautions, the technique offers an excellent means of solving one of the most vexing of clinical problems.

EDITORIAL PARAGRAPHS

Isacen (Gugenheim) is a new purgative mentioned by Dr. Max Einhorn in the *J. A. M. A.*, June 5. It is said to be superior to phenolphthalein.

Please remember that the Journal cannot say anything about your local or district medical society meetings unless the editor knows something about it.

Deaths of physicians during 1925 totaled 2,483 (*J. A. M. A.*) The largest mortality, 665, occurred between 61 and 70. There were 137 deaths among those who served during the World war.

The John B. Murphy Memorial in connection with the American College of Surgeons, Chicago, was dedicated with impressive ceremonies June 11th. Dr. W. J. Mayo gave the memorial address.

The Minnesota State Medical Association has raised the annual dues from five dollars to fifteen dollars. Nebraska doctors whose dues were raised from five to eight dollars the past year need not feel so badly.

"Diagnostic Standards of the American Tuberculosis Association"—a convenient and valuable little pamphlet may be had free of charge by any physician applying for the same. Address, Miss Alice Marshall, Executive Secretary, 540 Paxton Bldg., Omaha.

Vital statistics released by the Nebraska Department of Public Welfare indicate a 3% decrease in birth for 1925 as compared with 1924; that there was an increase of 10% in illegitimate births; that there were five sets of triplets born and 332 pairs of twins.

It is not so uncommon to hear a physician in relating his experiences say, "I had one or two cases," or, "I had two or three cases." Now just think a moment—he had either one case, two cases, three cases, four cases—and he ought to know definitely—or he lied!

When you see a thing in the Journal, the chances are more than 99 out of 100 that it is so; but it must be remembered that the Journal is to an extent dependent for news items concerning the profession on a clipping service and the clippings are not always founded on the exact truth.

An editorial in an Omaha daily recently pleaded for the use of simpler expressions by doctors in explaining medical facts to their patients. Suppose that editor was seized with an attack of appendicitis and his physician would tell him he had the "bellyache in his blind pouch—and inflammation of the guts." Would that make him feel any better?

Nearly a year ago it was requested under this heading that the names of medical students, the sons and daughters of Nebraska physicians, be reported to the editor of this Journal. Just four replies were received, which shows one of two things: Either, how little the Journal is read by the average physician, or the indifference of the profession. Thanks!

In spite of the current belief that there is a scarcity of physicians in smaller places, recent medical graduates find it difficult to find locations in Nebraska where there is a reasonable probability that a living may be made. The editor occasionally receives requests for information about locations, but none the past year from communities who need physicians.

The American College of Physical Therapy announces a Prize Thesis Contest, the subjects to be on some branch of physical therapeutics, the paper to be limited to 2,000 words and must involve some branch of research. Six prizes in physical therapy apparatus in total value exceeding $2,500 will be awarded. Dr. D. Kobak, 30 North Michigan Ave., Chicago, is chairman of the Thesis Committee.

The contract community doctor idea developed several years ago to assure medical service to communities not otherwise able to get or to retain physicians is to have a further trial at Gove City, Kansas. Members pay $12.00 to the bank every six months which entitles them to regular medical service, and medicine, (not including obstetrics or surgery). People living outside of a ten mile radius pay 75 cents per additional mile, extra.

Glistening sheets of what appears to be paper are much used nowadays to wrap boxes of candy and other articles. This material is cellophan. It has been discovered that this material makes a sterilizable dialyzing membrane. Under fifteen pounds of steam for 20 minutes its dialyzing powers remained unaffected. The various uses of such a membrane in physics, chemistry, bacteriology and biology are obvious, say the Du Pont people.

The telephone was invented in 1876—just fifty years ago—and many a physician now practicing in Nebraska remembers the days when his calls came by messenger. If they were country calls the messenger usually was a boy on a pony and most likely he was dispatched from home after school was out, or after the day's work in the field was done. The result was that the doctor had a night's job, going to his patient and returning home, by horse and buggy.

NEW ORGANIZATION OF COMMITTEE ON MEDICAL DEFENSE

A meeting of the Medical Defense Committee was held in Omaha, Nebr., May 20th and the following organization perfected.

Dr. B. B. Davis elected Chairman and Advisor.

Dr. Czar Johnson was elected and designated Medical Counselor of the Committee, and authorized to act as the active member in the program for prevention and defense of medical malpractice suits.

Atty. C. Petrus Peterson of Lincoln was appointed by the Committee, Legal Counselor and Defense Attorney for the Medical Defense Committee of State Medical Association.

Dr. R. B. Adams, Secretary.

The Committee formulated the following policy of activity.

Dr. B. B. Davis to assume the duty of Chairman and organization of a Medical Defense program for the City of Omaha in conjunction with the general defense program of the Committee.

Dr. Czar C. Johnson together with Attorney C. Petrus Peterson to prepare articles for publication in the Nebraska State Medical Journal as deemed suitable for publication, and confidential data to be supplied to the District Councilors and other members of the Society as may be deemed advisable.

It was agreed that the Councilors of the State Medical Association be requested to function as active assistants to the Medical Defense Committee and that they immediately organize their Districts for this purpose.

The Defense Committee recommends 1st: That each Councilor secure a roll of members of his district by counties and towns for his files. 2nd: That each physician in the County and Councilor district who is threatened or has any knowledge of a malpractice suit communicate immediately with the Councilor of the district. 3rd: That the Councilor shall be the field officer for the Defense Committee and all communications such as requests for medical Defense assistance, reports, and such other data pertaining thereto be transmitted through the Councilor of the District to the Councilor or the Committee, Dr. Czar C. Johnson, 511 Security Mutual Bldg., Lincoln, Nebraska. 4th: That Councilors of the District retain a carbon copy of all communications in their office of data or letters transmitted to the Medical Defense Committee physicians of their Districts or any other person. 5th: That he instruct each county Secretary to notify the members of the County Society of this new duty of the Councilor.

This program will be outlined in greater detail later, but in order to secure publication at this time must of necessity be abbreviated.

—C. C. Johnson.

THE RECENT MEETING OF THE NEBRASKA ASSOCIATION OF MEDICAL WOMEN

The semi-annual meeting and dinner of the Nebraska Association of Medical Women was held at the Athletic Club, Omaha, May 11th. Thirty-five members of the association were present.

Dr. May L. Flanagan of Lincoln was elected president for the coming year, succeeding Dr. Nora M. Fairchild of Omaha.

Other officers elected were Dr. Charlotte M. Sievers of Fremont, vice-president, and Dr. Ruth A. Warner, Lincoln, secretary-treasurer.

Dr. Lydia L. Schaum of Pekin, China, gave a dinner talk on "Medical Mission in China." Dr. Schaum is on the staff of the Sleeper-Davis Hospital for women and children of the Methodist Mission, Pekin.

Reports of the Medical Women's National Association which was held in Dallas at the time of the American Medical Association, were given by Dr. Rose H. Wohl of Omaha who attended as a delegate from the Nebraska Association of Medical Women and by Dr. Olga Stasny who is second vice-president of the Medical Women's National Association.

The scientific program of the evening consisted of a symposium on diabetes. Papers were read on various phases of this subject by Drs. Brandt, Fairchild, and Flanagan. Discussion of the papers were led by Drs. Warner, Elizabeth Moyer-Swab, and Dr. Harriet S. Hamilton, Council Bluffs, Iowa.

—Nora M. Fairchild.

FIRST ANNUAL MEETING, WOMAN'S AUXILIARY, NEBRASKA STATE MEDICAL ASSOCIATION

The first annual meeting of the Woman's Auxiliary of the Nebraska State Medical Association was held in Omaha, May 11th, to 13th. The attendance was splendid and the registration and enthusiasm shown was very gratifying to those who had worked hard to further its organization.

The first activity was the reception given by the Auxiliary at the rooms of the Omaha Society of Fine Arts on the afternoon of May 11th. The luncheon at the Blackstone Hotel on May 12th, at one o'clock was important as it marked the first annual business meeting of the Auxiliary. Mrs. F. A. Long, the president presided and the meeting opened with prayer by Mrs. W. F. Milroy. Following the luncheon, Mrs. H. C. Miller, soprano, with Mrs. Karl Werndorff at the piano, (both doctor's wives), gave a delightful musical program. The wives of the past presidents of the Nebraska State Medical Association were then introduced and tribute paid to them.

Dr. Palmer Findley brought a welcome from the Nebraska State Medical Association and granted jurisdiction to the Auxiliary to complete its organization. Dr. Findley spoke briefly about the Doctor's wife, much being written about the country doctor but very little about his wife, he said. He contrasted the doctor and his wife of the late fifties to the doctor and his wife of the present day, but nevertheless the young doctor of today with aspirations must sacrifice and his wife must sacrifice too.

Greetings from the Douglas County Medical Society were brought by Dr. Adolph Sachs, its president. Doctor Sachs spoke on the history of the Medical Society and felt that there was a decided place for the Auxiliary as an inspiration in furthering good fellowship.

The secretary reported 225 members, and the finances in good condition and adequate to take care of present expenses.

Mrs. A. F. Jonas was elected second vice-president of the Woman's Auxiliary of the American Medical Association at the meeting in Dallas in April and she gave a report of that meeting. The constitution as presented by the constitution committee was adopted and reports of the County Auxiliaries were given. Phelps and Pawnee Counties each reported 100% membership.

Mrs. F. A. Long gave her address, pointing out that the wonderful opportunities of the Woman's Auxiliary must be realized by all of us when we think what the wives of 1,200 members of the State Medical Association can accomplish if properly organized. Our first aim is to know one another better and already this spirit of friendliness is in the air. Public health as outlined by the American Auxiliary, co-operation with the Anti-Tuberculosis Society, stressing the Hygeia Magazine, are things which we must carry on. Our slogan for this year, "A physical examination for every member of the physician's family on his or her birthday."

The following officers were elected: Mrs. Clarence Rubendall, Omaha, president; Mrs. E. W. Rowe, Lincoln, vice-president; Mrs. S. A. Preston, Fremont, treasurer; Mrs. W. R. Boyer, Pawnee City, Mrs. F. L. Wilson, Stuart, Mrs. S. A. Swenson, Oakland, Mrs. P. A. Sundbury, Holdrege, directors. Mrs. Harry Flansburg, Lincoln, was appointed secretary.

A drive around the city and a visit to the Hattie B. Munroe Home for Crippled Children was the program for the morning of May 13th, and the guests were taken to the May Breakfast at the First Presbyterian Church.

The Omaha doctors' wives acted as hostesses for the drive and the breakfast.

The next annual meeting will be held at Lincoln.

—Mrs. Clarence Rubendall.

ANESTHETISTS MEET

The annual meeting of the Mid-Western Association of Anesthetists will be held October 11-14, 1926, at Kansas City, Mo., at the same time as the Clinic Week there. Headquarters, Baltimore Hotel.

An interesting and attractive program is in process of making. Any physician or dentist desiring to read a paper should send the title of his paper to the secretary very soon.

Ralph M. Waters, M. D., Sec-Treas.
425 Argyle Bldg., Kansas City, Mo.

THE AMERICAN NATIONAL RED CROSS NURSING SERVICE

(Mrs. Elsbeth H. Vaughan, Asisstant Director Nursing Service, Midwestern Branch Office, A. R. C., St. Louis, Mo.)

What is the Red Cross Nursing Service and how does it function? These are questions frequently asked by both professional and lay people. One can readily understand why so many individuals do not realize the amount of machinery required and do not know of its methods of operation.

The American Red Cross Nursing Service, which today has an enrollment of approximately 43,000 nurses, is by law the reserve of the Army Nurse Corps and by special arrangement serves the Navy, the U. S. Public Health Service and the U. S. Veterans Bureau in a similar capacity. During the World War it equipped, uniformed and assigned some 20,000 nurses to active duty with the Army, the Navy, the U. S. Public Health Service and directly under the American Red Cross. From this enrollment, also, are drawn those nurses who serve in the Red Cross Public Health Nursing Service, as Home Hygiene Instructors and in all Red Cross nursing activities both at home and abroad.

While policies and general administrative procedures are decided upon by the National Committee on Red Cross Nursing Service and National Headquarters, the work of recruiting eligible nurses and the maintaining of up-to-date records of all enrolled nurses in the various districts of the states is carried on by the Local Committees on Red Cross Nursing Service. Through the medium of these Local, State and National Committees, the mass of detail work necessary for the maintaining of this active reserve is taken care of.

Nebraska is divided into two districts with two local Committees covering the area with headquarters at Lincoln and Omaha. The Chairmen and Secretaries of these Committees are:

Miss Jennie Higgins, Chairman, 2100 South St., Lincoln. Miss Euphemia Peterson, Secretary, 1312 K St., Lincoln. Miss Jennie Sunderland, Chairman, 2420 Harney St., Omaha. Miss E. Beryl Cornell, Secretary, Methodist Hospital, Omaha.

It will be of interest to the physicians in Nebraska to know that the Secretaries have up-to-date card records of the 510 enrolled Red Cross Nurses residing in their state. In the event of a disaster or emergency, these Committees will be called upon for the necessary nursing personnel. The State Committees, composed of nurses from Local Committees with representation from the State Nurses' Association and other state agencies having nursing interests act as a liaison between the Local Committee and the State Nurses' Association, thereby keeping all nursing groups informed of the activities of the Red Cross Nursing Service.

PROGRESS OF NATIONAL ENDOWMENT FUND OF THE PHYSICIANS' HOME, INC.

Organization plans for the National Endowment Fund of the Physicians' Home, Inc., the movement to provide homes for the old and financially insecure physicians of the country, are progressing rapidly. Endorsement has already been given by the American Medical Association, through its President, Dr. Wendell C. Phillips, and contributions are being received from all over the country.

From the beginning in organizing this movement, a solid coalition of all state, county and city medical societies in the United States has been advocated, in order that they might work together in national unison for the establishment of at least three Homes of Tranquility, to provide for these old, worn-out and incapacitated physicians and surgeons.

One home will be established in the Northeastern territory, including Pennsylvania, New Jersey, New York and the six New England states. For this Northern unit, an option to purchase has been secured on Downsbury Manor, located at Ridgefield, Connecticut, fifty miles from New York City, and very centrally located in the group of states mentioned.

Colonel Edward M. Knox, "Knox the Hatter", spent approximately a million dollars in the construction of Downsbury Manor, and it is offered to the Physicians' Home, Inc., at a gift price of only $125,000. It is an estate of about 300 acres with 14 buildings and the Manor House.

The Southern territory will include the states from Maryland to Florida. For the home in this section, the purchase of a new steel and brick building, erected in 1922 by the late Dr. G. T. Divers, at Stuart, Virginia, is contemplated. Dr. Divers erected this building to be used as a private sanitarium, and it contains 50 rooms, and the necessary outbuildings, situated on a hundred or more acres of land near the North Carolina line. The cost of this building was about $250,000. Mrs. Divers offers the property at $100,000, but will donate $45,000 to the Physicians' Home, Inc., and the purchase price is thus made only $55,000.

The next step is to secure a site, or another gift building and property somewhere in the Middle West, to provide for the old and incapacitated physicians in that territory. It is thought, on account of climatic advantages, that a home should be located in Southern Illinois or Missouri to provide for the Midwestern territory.

These three units should take care of the incapacitated members from the 140,000 physicians in these three territories. In addition to this, there will be 12,000 in California, Oregon, Idaho, Washington, Arizona, Nevada and Utah, for whom a home will be established in the Golden Gate territory, namely, California.

The proposition has been approached from every angle, information has been secured from every source, including the best legal talent, and leading medical men, and it is conceded that the unit method is in all respects the most practical.

Establishing a home in each of many states was seriously considered, but in view of the tremendous cost, upkeep and supervision involved under such an arrangement, this plan was rejected, and the project will be carried out with the three or four unit homes outlined above. These units will amply take care of all the needy and incapacitated doctors, who, it is believed, will find life more interesting among numbers than among a solitary few.

THE LARGER CONCEPTION OF MEDICAL PRACTICE

The apotheosis of pure science must give way to the larger conception of the conscientious care of the sick, and science for science's sake assume its most important but proper place. Evaluate pure science fairly, evaluate research sanely, and emphasize the skilful management of the sick individual. Teach those principles calculated to relieve human suffering. Stress the service side of the physician's job. Modern medicine must be the applications of science at the bedside — science so applied that every factor tending to restore the individual to a normal regimen of life shall be utilized. Science is the armament of the physician; and his skill in the use of this armament in overcoming disease reflects his training and his attitude toward his fellow man. Medicine must maintain its superstructure of service as its foundation of science. "Knowledge is proud that he knows so much. Wisdom is humble that he knows no more."—Dr. I. S. Cutler in his address before the Annual Congress on Medical Education (Jour. A. M. A., April 7, 1923).

PRACTICE BUILDING IN SMALL-INCOME COMMUNITIES

1.—Prepare thoroughly.

2.—Make hospital connections.

3.—Cultivate friendly relations with fellow physicians.

4.—Examine patients carefully and completely.

5.—Preach periodic health examinations and preventive medicine.

6.—Live as nearly as possible according to the standard of your patients.

7.—Keep office equipment up to date.

8.—Remember credit is essential and that the local banker will help you, if he is impressed by your business methods.

9.—Collect fees in cash whenever possible.

10.—Never forget the Golden Rule.

—Med. Economics.

OPPORTUNITY

They do me wrong who say I come no more
When once I knock and fail to find you in;
For every day I stand outside your door,
And bid you wake, and rise to fight and win.

Wail not for precious chances passed away!
Weep not for golden ages on the wane!
Each night I burn the records of the day;
At sunrise every soul is born again!

Laugh like a boy at splendors that have sped!
To vanished joys be blind, and deaf, and dumb!
My judgments seal the dead past with its dead,
But never bind a moment yet to come!

Tho' deep in mire, wring not your hands and weep;
I lend my arm to all who say, "I can!"
No shame-faced outcast ever sank so deep
But yet might rise and be again a man.

Dost thou behold thy lost youth all aghast?
Dost reel from righteous retribution's blow?
Then turn from blotted archives of the past,
And find the future's pages white as snow.

Art thou a mourner? Rouse thee from thy spell!
Art thou a sinner? Sins may be forgiven!
Each morning gives thee wings to flee from hell,
Each night a start to guide thy feet to heaven.

—Walter Malone.

PROFESSIONAL KINDNESS

Ah! here is the keynote of medical art, says Frank A. Ely, M. D. (Iowa Medical Journal). Kindness is the one trait which, when possessed by the physician, can make up for a multitude of artful deficiencies. Clumsy hands in kindly service become gentle. A kindly smile beaming through an unkempt beard is like sunrise in the cane-brake. A kindly sentiment crudely expressed is like a drink of crystal spring water from an iron dipper. Kindly silence is frequently resonant in its expression of sympathy. Kindness cannot be assumed or imitated. It emanates alone from love.

A stranger on the main street of Hornetsville, Ariz., came upon a battered individual with both eyes blackened and face swollen with bruises, lying in a heap against the curb at the principal corner.

"What's happened to you?" asked the stranger with some agitation.

"A feller beat me up," was the reply, "for not payin' a bill."

"Why don't you send for the doctor?"

"The doctor was here about a minute ago, pardner."

"Oh, you're all right, then?"

"Why, pardner," said the wounded citizen, "it was the doctor's bill I didn't pay."—Judge.

THE SOCIETIES.

About fifty doctors and doctors' wives attended the **Madison County Medical Society** meeting at Newman Grove, on the evening of June 8. Following the dinner the ladies were entertained at the Doctor Frink residence where also a business meeting of the **Women's Auxiliary of Madison County Medical Society** was held. This society was organized at the Plainview meeting in May, with Mrs. H. L. Kindred, Meadow Grove, president; Mrs. Perry Allerton, Tilden, secretary.

The program of the county society was a clinic on Diabetes. Three diabetics were presented — a child, a middle aged and an elderly person. Consideration of diabetes — etiology, symptomatology, diagnosis, pathology and treatment had been assigned to different members who came prepared to discuss the part assigned to each one. The result was a very interesting and instructive meeting.

A resolution was passed inviting the Dentists to become associate members of the county society on payment of a membership fee of $1.00.

The **Twelfth Councilor District Medical Society** meeting was held at Scottsbluff on the afternoon and evening of June 8. Dr. Adolph Sachs, Omaha, gave a graphic discussion and presented a number of sildes on The Cardiac Arythmias, presenting the subject from the elementary or fundamental standpoint much to the delight of his audience. Dr. O. S. Fowler, Denver, spoke on The Kidney and Its Relation to Abdominal Diagnosis, illustrating his subject by several dozen x-ray plates. It was a masterful presentation of a subject not well understood by the average physician. The dinner, served at the West Nebraska Methodist hospital, was attended by about fifty physicians and wives. This was followed by a talk by Dr. F. A. Long, Madison, on The Economics of Medicine. Dr. F. B. Young, Gering, was elected president and Dr. W. E. Shike, Gering, Secretary.

Over sixty doctors were in attendance at the **Republican Valley and Tenth Councilor District Medical Society** meeting at McCook, May 27, under the presidency of Dr. J. V. Beghtol, veteran Hastings physician. Twenty-one physicians went from Adams county in the Corhusker Bus, 150 miles to the meeting place. Here is an idea for other district societies to think about. Twelve new members were admitted to the society. The program as carried out, follows:

"Surgical Treatment of Colitis with Case Presented", J. M. Willis, McCook; "Intestinal Infection", S. J. Jones, Hastings; "Osteomyelitis with Clinic", J. E. M. Thompson, Lincoln; "Digitalis", Lothar F. Egen, Hastings; "A Talk on European Clinics", H. S. Andrews, Minden.

This society has spring and fall meetings. Already plans are under way for the fall meeting at the Hastings State hospital. An effort is being put forth to make this the largest meeting ever held aside of the Nebraska State Medical Association meetings.

On June 10th the **Cedar, Dakota, Dixon, Wayne and Thurston Counties Medical Society** held a meeting at Randolph.

The scientific program consisted of a dry clinic on Stomach Disorders which was conducted by Dr. E. L. Bridges of Omaha. Dr. Bridges demonstrated and lectured on the cases brought in by different members of the society in a very pleasing and thorough manner, much to the enjoyment and profit of those present.

—C. L. Philips, Sec.

The **Cheyenne County Medical Society** at a meeting held at Sidney, May 7, took in three new members from Kimball county, the latter county not having an organization this year. The matter of uniform fees, policy on collections and the relationship of ethical practitioners to the various cults were discussed.

The **Custer County Medical Society** met at Broken Bow on Monday afternoon, May 31st and the following program was given: "Hepatic Extract in Treatment of High Blood Pressure", Dr. C. D. Spivey of Anselmo; "Infection of the Hand", Dr. D. B. Kantor, Sargent; "Otitis Media", Dr. P. H. J. Carothers of Broken Bow; "Focal Infection" Dr. A. D. Dunn of Omaha, in addition to this subject Dr. Dunn gave a synopsis of his discussion of periodic health examinations as given at the last state association meeting.

Dr. Theo. Koefoot of Broken Bow was elected to the office of secretary-treasurer of the association to fill the unexpired term of Dr. C. E. Pinckney who moved to Loup City some time ago.

HUMAN INTEREST TALES

Dr. T. Y. Dorwart, has located at Lexington.

Dr. James C. Agee, has opened an office at Valley.

Dr. L. W. Forney, formerly of Daykin, has located at Mason City.

Dr. and Mrs. B. B. Davis, Omaha, spent the month of June in California.

Dr. O. W. French, Page, lost his x-ray machine by fire from a short circuit.

Dr. J. J. Keegan and family, Omaha, are spending a month in the wilds of Colorado.

Dr. C. S. Minnich, Palmer, is reported ill from a paralytic attack, suffered in May.

Dr. C. E. Whitehead of Bozeman, Mont., visited "home folks" at Mason City in May.

Dr. E. A. Sommer, has retired from practice at Deshler and will locate at Redondo Beach, Calif.

Dr. C. R. Mullong and wife, Norfolk, motored through part of the Southland in May and June.

The marriage of Dr. Carryl W. Wiggins, Exeter, and Miss Aletha McWhinney, Omaha, is announced.

Dr. H. M. Deffenbaugh of Fairmont, has sold his equipment to Dr. C. W. Gooden formerly of Harvard.

Dr. Frank Abts, Randolph boy, recent interne at St. Joseph's hospital, Omaha, has located at Yankton, S. D.

The Bryan Memorial hospital at Lincoln, was formally opened May 20. Dr. E. W. Rowe, is chief of staff.

The Nebraska State Eclectic Medical association held an annual meeting at the Lincoln Hotel, Lincoln, the middle of May.

Dr. W. K. Clark, after 26 years of practice at Niobrara, has sold his interests to Dr. C. R. Green, and will move to Lincoln.

Dr. R. A. Frary, Omaha, has purchased the equipment of the late Dr. W. R. Peters, Stanton, and will practice at the latter place.

Dr. and Mrs. Ladd Hoover, Omaha, have gone to Pittsburg, Pa., where the doctor has an internship in the Allegheney General hospital.

The first young woman medical student to be appointed to an internship in an Omaha hospital is Miss Charlotte A. Mitchell, of David City.

The Negro Medical, Dental and Pharmaceutical Association of Omaha, gave a complimentary dinner to Dr. N. H. Whittaker of Los Angeles recently.

Dr. George Haslam has returned from Philadelphia and will practice in Fremont. He is a son of the late Dr. George Haslam, former Fremont surgeon.

Dr. O. C. Diehl, Diller, after twenty-five years of strenuous practice is treating himself and family to an auto camping vacation trip of approximately 4,000 miles.

"Fundamentals of Dermatology" for students and practitioners, Dr. Alfred Schalek, Omaha Dermatologist, author, is about to appear from the press of Lea and Febiger.

A "Dr. A. L. Adams" has been arrested in Oklahoma and brought back to Nebraska for selling orthopedic apparatus to western Nebraska doctors and collecting and keeping the initial payment.

Dr. Magnus Peterson, for the past several years assistant physician at the Norfolk State hospital, has taken a position in the psychopathic department of the Colorado State hospital at Boulder, Colo.

Dr. Micheal G. Wohl was elected president of the staff of the Paxton Memorial hospital at their annual election of officers, May 19. Others elected were Dr. Geo. E. Neuhaus, vice-president, and Dr. Philip Romonek, secretary-treasurer.

An added feature for the coming year will be clinical ward walks, to be held by the staff bi-monthly, at which interesting cases in the hospital will be discussed at the bedside, by the respective staff member in charge of the case.

The Nebraska Association of Medical Directors was organized in Omaha during the time of the meeting of the State Medical with Dr. A. R. Mitchell, Lincoln, as president, Dr. A. C. Stokes, Omaha, vice president, and Dr. R. A. Moser, Omaha, secretary-treasurer.

Dr. Victor E. Levine, Omaha, author of the "Modern Aspects of Nutrition" articles running in this Journal, has been accepted as a member of the Pope All-American Arctic Expedition which will establish a base at Wainwright, Alaska, this summer, preparatory to a scientific exploration of the far north during 1927. Dr. Levine's studies will pertain to nutrition. He accompanied an expedition to Labrador several years ago to study vitamines.

NECROLOGY.

ROBERT S. MITCHELL, Appleton, Wisconsin; Northwestern University Medical School, Chicago, 1904; practitioner at Red Cloud, Nebr., in association with Dr. E. A. Creighton, for thirteen years; captain in the medical corps during the World War; pediatrician in a clinic at Appleton, Wisconsin, since 1921; died suddenly, May 17, 1926, aged about 39 years.

H. O. MUNSON, Manley, Nebr.; Omaha Medical College, 1895; practitioner in a number of Nebraska towns, among them, Norfolk, Battle Creek, Omaha, Julian and Manley; said to have been a narcotic addict, suicided by hanging, May 24, 1926, aged about fifty-two years.

CLARENCE C. GREEN, Beaver City, Nebr.; Jefferson Medical College, Philadelphia, 1888; for thirty-eight years a practitioner in the Beaver City community; was found dead in his home, supposedly from organic heart disease, May 24, 1926, aged sixty-three years.

JOHN L. GOFF, for many years a practitioner at Litchfield, Nebr., died March 16, 1926, of pneumonia, aged 80 years.

BOOKS RECEIVED

Nursery Guide by Louis W. Sauer, Ph. D., M. D. Cloth, 206 pages. 8 Mo. Price $2.00. The C. V. Mosby Company, St. Louis.

The Manual of Normal Physical Signs by Wyndham B. Blanton, B. A., M. A., M. D. 215 Pages. 8 mo. Cloth. Price $2.50. C. V. Mosby Company, St. Louis.

The Thyroid Gland by Charles H. Mayo and Henry W. Plummer. Cloth, 83 pages. 8 mo. Price $1.75. Published April, 1926, by the C. V. Mosby Company, St. Louis.

A Bipolar Theory of Living Processes by George W. Crile. Cloth. 405 pages with illustrations. 8 mo. The MacMillian Company, New York, 1926.

Modern Methods of Amputation by Thos. G. Orr, A. B., M. D., F. A. C. S. Professor of Surgery, University of Kansas. Cloth. 114 pages with 125 illustrations. 8 mo. Price $3.50. C. V. Mosby Company, St. Louis.

Handbook of Diseases of the Rectum by Louis J. Hirschman, M. D., F. A. C. S. Cloth. 300 pages with 252 illustrations. 8 mo. Price $6.50. C. V. Mosby Company, St. Louis.

Diseases of the Skin by Richard L. Sutton, M. D., LL. D., F. R. S. (Edin.) Cloth. 1268 pages with 1147 illustrations. 8 mo. Price $12.00. C. V. Mosby Company, St. Louis.

Disease Prevention by H. H. Waite, M. D., University of Nebraska. 632 pages. Cloth. 16 mo. Price $4.50 net. The Thomas Y. Crowell Company, publishers, New York.

Gastro-Intestinal Diagnosis and Ulcer of Stomach

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THE DIAGNOSIS OF GASTRO-INTESTINAL DISEASE FROM A GOOD HISTORY*

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My message in this paper is one of encouragement to those of you who, living in small communities, find yourselves compelled to make most of your diagnoses without the help of modern roentgen-ray and clinical laboratories and all the aids which are at one's command in a large teaching hospital. I want to tell you that a good history is still the most important factor in making the diagnosis in gastro-intestinal disease, and if you will spend more time in getting that story and will exercise more care and skill in interpreting it, you can, in the large proportion of cases, hit the nail on the head just as accurately as does the man who has a sheaf of laboratory reports in his hand.

The trouble with the average history which is taken by a practicing physician or an intern is that it is too short and choppy. It does not give a clear-cut consecutive story of everything of medical interest which has happened during the life of the patient. It may open up wonderful possibilities for further questioning but these opportunities are not grasped. Thus, it may say in the history: "In 1910 and 1915 patient had ptomaine poisoning." Go more carefully into that and you may find that others who ate the same food were not sick at all. Ask a few more questions and you get a story of typical attacks of gallstone colic. That will open your eyes to the fact that the belching and heart-burn, for the relief of which the patient is now consulting you, are mild symptoms of a cholecystitis which has been flaring up off and on for many years.

Read further in the intern's history and you will find the bald statement: "In 1912 the patient had a nervous breakdown." Go into that carefully and a host of important facts may come to light. He may have had tuberculosis, the existence of which he will hardly admit even to himself; he may have been so deranged that he had to be confined in an asylum, or he may have had business or family troubles which are still torturing him to such an extent that there is no chance of your helping him unless conditions can be improved. If you do not ferret out these things your patient will not respect you because he knows in his heart that you have not gone to the root of his troubles.

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*Address before the members of the Nebraska State Medical Association, Omaha, Nebraska, May 12, 1926.

A little further on in the history you are told, "In 1918 the patient had appendicitis." Why stop there? Go into that story and form your own opinion. Does it sound as if the patient really did have appendicitis? Did the operation do him any good? Was the abdomen explored at that time, and if so, what was found? Was the wound drained? If so, there are probably a lot of adhesions in the abdomen.

These are some of the clues which the specialist or the wise old doctor follows up because he knows that at any moment he may run onto something in the past history which will enable him to make a clear-cut and positive diagnosis. Time and again I have been called in consultation by some physician who thought he had a difficult case. He gave me such a short and imperfect history that I began to question the patient for myself, and shortly there came pouring fourth a story, perhaps of gallstone colic with faint jaundice, which made the supposedly difficult case seem ridiculously easy. Under such circumstances, I have seen the doctor turn to his patient and say with more or less irritation, "Why didn't you tell me that?" and the answer very properly was: "You didn't ask me, Doctor, and I didn't know it was important."

Therefore, take your time and be sure that you have the whole story. It may take you an hour but it will often save you from wasting weeks and months on futile treatment. Not infrequently, in order to get a real understanding of a longwinded story, as in the case of a woman many times operated upon, you will have to take the history all over again. It may seem an awful lot of trouble, but unless you are willing to spend a lot of time on these people you must not expect to help them.

THE TAKING OF A HISTORY

Principal complaint. The first thing to do in taking a history is to find out the principal complaint. That is important for two reasons: One that it will often give you an index to the patient's nervous make-up (some individuals complaining too much and others too little), and the other that you must be careful to treat the patient for what bothers him and not simply for what happens to interest you as you go over him.

The onset. The next thing to do is to find out if he or she ever had a good digestion ,and if so, just when it failed. That will give you a starting point, and incidentally, a good many suggestions as to the possible diagnosis. Just suppose that a man of fifty-five comes in and says that he could digest tacks up until three months before, when everything seemed to go wrong. You can be almost certain that he has cancer of the stomach. A woman of forty-five comes in complaining of attacks of pain in the upper right abdominal quadrant with constant belching and bloating. She can trace her troubles back to bilious spells and severe stomachaches when she was a little child. She has gall-bladder disease. A man with pain in the epigastrium, relieved by eating, says that he has had attacks off and on since he was twenty-two or twenty-four. He probably has a duodenal ulcer. A thin little woman tells you that she has always had more or less vague indigestion and that she is always having to be careful about her diet. She probably has a so-called functional trouble.

Peritonitis in childhood. I always ask about stomach-aches and attacks of severe indigestion in childhood, and particularly about "inflammation of the bowels", because I have so often seen cases in which it seemed to me that the indigestion of adult life could be traced directly back to a ruptured appendix in childhood. At operation you will find adhesions all over the abdomen, and you will know that there must have been peritonitis at some time. Why didn't the patient tell you about it? Because he didn't remember. Get hold of the mother and you will find that it came in childhood, and that for weeks he lay in bed with a rigid abdomen and high fever.

Periodicity. The next question in the history is: Does the trouble come in attacks? If it does you will suspect strongly that there is some organic cause such as an ulceration of the stomach or bowel, cholecystitis or appendicitis. Particularly in the case of ulcer, the characteristic feature, at least in the earlier years, is the tendency to recurrence after many months of perfect health. In the later years the distress often becomes more or less continuous.

A knowledge of the length of these intervals will help in making the differential diagnosis between duodenal ulcer and gall-bladder disease. Patients with ulcer generally go free for a few months or for a year or two, while those with gall-bladder trouble will often go for many years without pain. The latter are more likely to have belching and distress between attacks, while the patient with ulcer will probably feel perfectly well. The usual length of the individual attack should be inquired into because it is generally longer in cases of ulcer than in cases of appendicitis or gall-bladder disease.

The next question is: Are the attacks getting more severe and are they coming more frequently? If so, it means probably that the disease is getting beyond medical control and that the time is fast approaching when the patient is going to be driven to an operation.

The essential point in the diagnosis. When a patient comes in with a gastro-intestinal complaint, the big problem before the physician is not so much the making of an exact diagnosis as the making of a decision on the following point: Is there something organically wrong which needs surgical help and needs it pretty soon, or is the trouble functional and likely to be relieved by medical treatment? Theoretically it would be a nice thing always to be able to tell the patient exactly what he has, but in many instances it is not essential, because he has come to one of us as a sort of last resort, after having been treated extensively with diets and medicines; he has had all the suffering he wants; life has become a burden; his patience is exhausted, and he is ready for an operation. He may have an ulcer of the duodenum, a diseased gall-bladder or a bad appendix; he probably has two of these and he may have all three. Actually, as you all know, it is not always easy even at operation to tell whether those three organs are definitely diseased, and two of them have often to be removed on the strength of the history. Fortunately, they can all be attended to through the same right rectus incision so no harm is done if the deformed duodenum turns out to be free from ulcer but adherent to a gall-bladder full of unsupected stones.

Pain. The symptom which helps us most in this differential diagnosis between the serious organic and milder functional disturbances is pain. Where does the pain come and how does it radiate? Ask the patient to point to the part of his body in which the pain appears. Some pains have a characteristic radiation. With gall-bladder disease it generally runs up under the right shoulder-blade, and with gastrojejunal ulcer it may run down into the left lower quadrant. The pain of renal disease may run down into the pelvis and testicle, while the pain of mild angina runs out into the left arm and into the fourth and fifth fingers. Sometimes you will be puzzled until you dig out the fact that the patient really has two pains. Thus, the woman with gallstones may have the typical pain radiating into her right shoulder and in addition she may have an anginoid pain in the left side of her chest. If you ask these patients, they will often tell you that they know the difference between their two pains.

The next problem is to find out how severe the pain is. Is it real pain or is it only a feeling of discomfort? Was it necessary to call a doctor and did he administer morphin? The giving of morphin generally means that there was a gall-bladder or renal colic. A man with duodenal ulcer is often unable to put his mind to his work when he is having a bad attack. Find out if the patient is afraid to eat. This is particularly significant if you are dealing with a stout woman with a good appetite, for you may be sure that the pain has been severe enough to frighten her; otherwise she would not deny herself. In nine out of ten cases such a woman will be found to have gall-bladder disease.

Find out also if the pain awakens the patient at night. Anyone who is awakened out of a sound sleep at two in the morning and has to walk the floor for a while, rubbing his stomach, taking soda, and trying to belch is not a neurasthenic; he has something radically wrong, something which can probably be relieved only by surgical interference.

Find out what brings on the pain. Is it definitely related to the taking of food or is there no relation? The most pathognomonic pain is that which is relieved by the taking of food. It is found most commonly in cases of duodenal ulcer. In fact, typical duodenal ulcer is one of the easiest of all diseases to diagnose. The expert who has heard the story hundreds of times will make the diagnosis before the patient has said a dozen words. Yet, strange to say, in only thirty-three out of 100 patients coming to the Mayo Clinic recently with duodenal ulcer had the complaint been correctly diagnosed in spite of the fact that they had had symptoms for periods averaging ten years, and had seen an average of four physicians. I do not blame the older physicians for not knowing this typical syndrome because even today our textbooks do not describe it clearly.

Find out if the pain is made worse by jolting. If the patient has driven in from the country in a small car, find out how he or she stood the trip. If a woman tells you that for the last part of the journey she had to hold on to her lower ribs on the right side in front because that region was made so sore by the jolting, you hardly need a roentgen-ray plate to tell you that she has a diseased gall-bladder.

There is another type of pain which is made worse by exertion and which often causes confusion because the patient goes to the wrong specialist. The patient is genearlly a man around fifty-five or sixty who lives on a hill or who works hard in his garden Saturday afternoon and Sunday. Sunday night he has a pain around his heart and in his epigastrium which he thinks is due to indigestion because it is associated with flatulence and belching. I have seen such persons with high blood pressure and bad hearts cured by a few days of rest. Their indigestion will leave them if they will stop climbing hills and digging in their gardens. Remember that the early cases of heart disease are seen by the gastro-enterologist and not by the heart specialist.

Pain and epigastric distress requiring the constant use of soda are practically always due to organic disease. If you find that your patient has a box of soda in his pocket don't call him a neurasthenic; he probably has an ulcer.

If the pain is relieved by the passing of gas or fecal material, or if it is relieved by an enema, you will look for the cause in the lower bowel. If it is relieved by the passing of a lot of mucus the patient may have so-called mucus colitis, which is not a true colitis, but probably a nervous affection.

Tenderness. If there has been pain you will want to know if there was any tenderness or soreness in the abdomen after the attack? Definite tenderness and rigidity of the abdominal wall appearing after an attack of pain always means organic disease of some important organ.

The reverse-peristalsis syndrome. The next big thing is to find out whether the patient has any of the symptoms which may be grouped together in what I have called the reverse-peristalsis syndrome. These symptoms are vomiting, heartburn, belching, nausea, a feeling of fullness as soon as the patient starts to eat, a coated tongue, a bad taste in the mouth, and a feeling of back pressure against the diaphragm. These are all signs pointing to some organic lesion which is irritating the digestive tract and sending off reverse waves. Be careful in diagnosing organic disease in the absence of these symptoms. They may be present, however, in neurotics, in women who are pregnant or who have pelvic disease, and in men and women with pulmonary tuberculosis or other weakening diseases. In all of these conditions there seems to be a flattening or reversal of the gradient of forces which I believe maintains the downward direction of peristalsis, and, under these conditions, waves can easily run backwards.

Regurgitation. If the patient regurgitates, find out if the material smells bad. Sometimes if you will smell the material yourself you will learn that either a marked gastric retention is present or else a foul cancer of the stomach.

Belching. If the patient belches, remember that there is, first, a true belching, which is seldom repeated to any great extent. and second, a false belching or air-swallowing, which may be kept up for hours. Although air-swallowing is a bad habit which the patient can often stop, we must not forget that it was probably learned during his efforts to get relief from some distressing sensations which, in turn, were due to some organic lesion such as a diseased gall-bladder or failing heart. Air-swallowing is something like scratching, the more you do of it, the more you want to do, so the best thing to do is to stop and wait until the distress ceases. If you want to know how expert a belcher your patient is, simply ask him in a matter of fact way, "Let me see you belch," and he will oblige you.

When a patient tells you that he has a great deal of gas he may not have any at all, and it may be silly and useless to change his diet. He may simply be an air-swallower. This air rarely gets beyond the cardia, and if you get a roentgenogram of his abdomen you will see that he has no gas there. Always ask the patient if he bloats or if he passes flatus. Even those who think they bloat will often be found to have no excess of gas in the bowel.

Acid stomach and heart-burn. When the patient tells you he has an acid stomach, that does not mean necessarily that he has. It means simply that his gastric juice is regurgitating from the stomach, where he cannot perceive it, up into the pharynx where he can. If you pump the stomach you may find that he has low acid values and you will see how useless it is to try and cure him by changing his diet and by attempting to lower the amount of acid. In many cases he can be helped only by the removal of a diseased appendix or gall-bladder, or by the removal of an obstruction at the pylorus.

Nausea. If the patient has nausea do not think of gastric disease so much as of disease of the lower bowel. If the patient is a woman, think particularly of pregnancy or disease of the pelvic organs. In young women think also of the neuroses. I look such a girl squarely in the eye and say, "How are your love affairs coming along; are they entirely satisfactory?"; and if she cannot immediately give me a clear-cut answer, I say, "Come on now, let us have the whole story;

it will do you good to tell someone about it"; and it often does. I give her some advice and encouragement; 5 or 10 grains of bromural by day, and 5 or 10 grains of adalin, or 1.5 grains of dial by night. She gets some rest and sleep, and if my diagnosis has been correct her nausea and indigestion go.

Vomiting. If vomiting is present you want to know if it comes with ease or with difficulty. Some individuals vomit so easily that it does not mean very much; but, if a man tells you that he has to struggle for hours before he can get anything up, you may be quite sure that he has something organically wrong which distresses him so that he is willing to go through that torture to get some relief.

Find out the relation of the vomiting to meals. If it comes immediately afterward it is often hysterical in nature. Vomiting which is due to actual obstruction at the pylorus comes late, after the stomach has struggled for hours with its burden of food. You will ask if the patient has seen food eaten a day or two before. If so, there is no need for pumping the stomach because you will know that there is a serious delay in emptying, and that the man probably has some organic disease at the pylorus. You will know also that there is not much hope of curing the patient medically and that he had better go right away to a surgeon.

You will ask also if there was any blood in the vomitus, and if so, how much. The significance of the so-called coffee-grounds is well known. You will ask also about tarry stools, and, if the patient thinks he has seen them, you must make sure that he was not taking bismuth or iron at the time.

Loss of Weight. Especially if there is a history pointing to the presence of marked stagnation in the stomach you will want to know whether there has been loss of weight. There is so little absorption of either food or water from the stomach that when the pylorus is blocked the patient rapidly goes down hill.

Marked loss of weight is always an ominous symptom but you must first make sure that the patient has not been dieting. Many women nowadays are trying to reduce; others starve themselves when they have indigestion, and others are given diets which contain so little protein that they have to live on their own tissues. It has often puzzled me to see how some physicians can let their patients lose weight without getting concerned about it. Many will interdict the use of meat and some will even try to take away all protein, quite oblivious to the fact that life cannot be maintained very long on such a diet.

Find out particularly if the patient is living mainly on spinach and greens. When in practice in San Francisco I used to say jokingly that the present craze for rough and indigestible diets was worth at least two hundred dollars a month to me because it brought the business in. Remember that a carnivorous cat or dog has an intestine about four times the body length, while a herbivorous animal has an intestine from twenty-five to one hundred times its body length. Recent studies have shown that man's intestine is often only three or four times the body length, and moreover, unlike the herbivora, he has no multilocular stomach or big cecum in which food can be fermented for two weeks or more. The result is that when a thin little woman with a short, carnivorous bowel is made to live on spinach, bran, and vitamins, her digestion is frequently so ruined that she rapidly loses weight, bloats with gas, and develops abdominal distress. I have seen such women lose weight until they were down to 85 pounds, when all they needed was to be put back on a sensible smooth diet containing a small amount of residue.

Some have asked, "But wouldn't you ever prescribe a rough diet," and the answer is, "Yes, of course." If a woman is constipated and has an excellent digestion, a rough diet may be a great boon to her; but when I prescribe such a diet I always inquire first to see if she has ever had trouble with such foods, and I warn her to report to me if she should develop flatulence and distress.

Constipation. If the patient complains of constipation, the first thing is to find out how long it has been present. If a little woman tells you she has been constipated ever since she can remember, you don't worry much about it, but if a man of sixty tells you that his bowels moved perfectly until a year ago, since which time he has had several attacks of severe constipation, you must get worried and you must stay worried until an expert roentgenologist assures you that your patient has not carcinoma of the colon. Incidentally, this is one situation in which you cannot dispense with the roentgenologic examination.

Another question is: Has the patient really a constipation or has she (it is usually a "she") been taking purgatives so long and so steadily that she really does not know what the bowels would do if they were let alone. Many of these women are miraculously cured by Christian Science because it makes them do what we would like them to do, and that is to stop worrying and to leave themselves alone.

Auto-intoxication. The physician must go carefully into the subject of auto-intoxication because so many people with constipation are terribly worried for fear their brains are being ruined by intestinal poisons. So long as they believe that, it is useless to try and do anything with them because they will not wait for a normal bowel movement. The patient should be asked how long it is after the bowels move before his headache and dizziness disappear. In nine out of ten cases he will answer that the relief comes within a few seconds after defecation. The physician should then point out that in that case the mechanism producing the symptoms cannot be a chemical one because if it were relief could not be obtained so soon. A drunken man is not sobered the moment his flask of whiskey is taken away from him. His brain clears up the next day when the poisons gradually distill out of his body. The patient should be told also of the experiments in which the typical symptoms of auto-intoxication have been produced by packing the rectum with cotton(1-2).

These symptoms of depression, headache, dizziness, and mental fuzziness are very real; it may be that they are sometimes produced by the absorption of fecal poisons, but when they disappear immediately after defecation you may be sure that they are being produced in a mechanical way by pressure on sensitive nerve endings in the rectum. For fifteen years I have been looking for cases of real intestinal auto-intoxication in adults, and I think I have seen a few but I am not sure. Cases that other physicians have brought to me with that diagnosis have always seemed to me to be better classified under such headings as hypertension, hypothyroidism, cholecystitis or hereditary migraine.

Headache with indigestion. Many persons with migraine go to the gastro-enterologist because they have indigestion or constipation, and they cling to the hope that if only those troubles would be cured they would lose their prostrating headaches. Here again a careful history is absolutely essential because upon it will be based the diagnosis and the decision as to the mode of treatment. The physician wants to know how long the headaches have occurred, the time of day when they come, and how long they last. He will want to know their location in the head, and the usual interval between the attacks, their relation to menstruation, and to anything else which the patient may think brings them on. He can get an idea of their severity by finding out whether the patient is able to keep at work. Is there nausea or vomiting with them, and is there a definite relation to constipation? Does the patient ever have headaches when the colon is empty, as after thorough purgation? Often the patient will say that his headaches are due to constipation, but on cross-questioning he will have to admit that he had them in the years before he became constipated or that he gets them at times when the bowels are empty .

We get to the crux of the problem by asking: Does the patient ever get the headache without indigestion and does he ever get indigestion without the headache? Which seems primary and which bothers him most? Such questioning will often bring out the fact that it is not the headache that bothers him, but a terrible feeling of depression and mental incapacity, or perhaps a feeling of nausea and severe indigestion. Why are these questions so important? Because, when such a patient comes in, the big problem before the physician is: Can this man be helped by the removal of a diseased appendix or gall-bladder, or has he the purely cerebral form of headache in which abdominal operations can do no good? If his indigestion is always secondary to a headache and if in the intervals the stomach and bowel function perfectly, there is not much hope for him, but if the physician can, by skillful questioning, dissect out a definite history of disease of the gall-bladder or appendix, something can perhaps be done.

Naturally, the physician will inquire about the other causes of headache which I need not take up here. There is one point which may be helpful to those who cannot easily consult with a good specialist in diseases of the nose and throat, and that is: When you want to know whether sinusitis is present, ask the patient if he has to spend much time in the morning hawking and spitting and blowing his nose. Ask him also if he can get along with one handkerchief a day or if he needs several. If he has no dripping in his throat and if he has a clean handkerchief at the end of the day, you may be quite sure that he has normal sinuses.

Jaundice. If the patient has had jaundice you will want to find out how definite it was. Some individuals are sallow at times and it is hard to know what significance to put upon it. You will want to know how the jaundice came on. If with pain, you will think of stones; if without pain, you will think, in young persons, of infectious or "catarrhal" jaundice, and in old persons, of carcinoma of the head of the pancreas. Most important is the past history. You will want to know whether the patient ever had any indigestion or pain which would suggest the presence of gallstones. If so, you may feel justified in operating. You will want to know whether the jaundice has been constant and whether it has been deepening or fading. Steadily deepening, painless jaundice generally means cancer. Chills and fever will suggest the presence of stones in the common duct.

Dietetic habits. You may be helped by finding out how the patient eats and what he eats. Does he bolt his food, does he overeat, or does he have rows with his family at every meal? Has he any chewing surface? It is fashionable nowadays to extract teeth, but unfortunately it is not yet fashionable to think about putting them back. Digestion begins in the mouth and unchewed food can usually be found in the stools untouched by the digestive juices. Starch grains which should be digested in the jejunum are carried down into the colon where they ferment and make gas. Men and women without teeth should be urged to get plates or bridges, and until they can get such appliances their food should be chopped fine or put through a "ricer."

Sleep. I find that physicians often forget to ask about sleep, and yet not infrequently it is the most important point in the story. Those who practice in the country may not have to watch out for insomnia, but those who work in the big cities must remember that many of the functional disturbances of digestion and many of the neuroses begin with loss of sleep. The electric light is not an unmitigated blessing to this generation because it makes it so easy for one to sit up late doing things which are not half so important as the getting of rest and sleep. The habit of sleeping becomes broken; insomnia develops, and with it a host of nervous symptoms. Hence it is that in San Francisco I found that my most useful and most frequently prescribed drug was not pepsin or bismuth or soda, but adalin, dial, or bromural, all mild, and I believe, harmless sedatives and soporifics. In the fifteen years in which I have used such drugs extensively I have never seen any tendency toward habit production.

All one has to do with many so-called neurasthenics is to give them several nights of good sleep. It enables them to get a new grip on life. Their sense of fatigue diminishes, their threshold for nervous stimuli rises, and most of their symptoms disappear.

The physician must always ask about worries, unhappinesses, family troubles, financial troubles, love affairs, and the other things which bring on insomnia and the neuroses. If he lacks the requisite sympathy and interest and understanding to find out about these things and to talk them over sympathetically with his patients, he cannot expect to have their confidence and loyalty and affection; and without these aids he may find himself quite unable to help their troubles. Occasionally, when a patient comes in with a vague complaint that hardly seems bad enough to require a doctor's attention it is well to ask her: "Why did you come? You didn't come merely about that stomach trouble: there is something else that is bothering you. Tell me about it and let me try to help you." Then may come pouring out the story perhaps of tragedy at home, of unhappiness, worry, or fear of cancer or of venereal infection. Some think that only the old family doctor can attend to these problems, but I feel sure that a true physician anywhere, either in the village or in the biggest city, must know about them and must take the time to help his patients with their solution.

Diarrhea. There are one or two points about diarrhea which I can give you which you may find helpful. In the first place, when confronted with a case of chronic diarrhea, you will want to know whether you are dealing with a serious condition like chronic ulcerative colitis or with something which can easily be treated medically and dietically. It is helpful to find out if the patient can sleep all night without going to the toilet, because that means generally that he is not suffering from true colitis with ulceration of the bowel. The presence of marked urgency and tenesmus generally means that the mucous membrane of the rectum is inflamed. Be sure to find out if the diarrhea comes mainly in the early morning, because if it does, half a teaspoonful of dilute hydrochloric acid given in a large glassful of water three times a day with meals will often work a miracle. It is unfortunate that this little trick is not yet generally known to the medical profession.

In every case of diarrhea, and particularly of bloody diarrhea, a sigmoidoscope should be passed, and the rectum should be examined digitally. Carcinoma of the rectum is a fairly common disease. It is the easiest disease to diagnose and yet most of the patients with it are treated for several years for hemorrhoids. Many of them are actually operated on for hemorrhoids before the real cause of the bleeding is discovered.

SYNDROMES WHICH SHOULD BE WELL KNOWN

There are so many diseases described in the average book on indigestion that the student is appalled at the complexity of the subject. Actually, the situation is not so bad as it appears because most of these diseases are rare and many of them are probably not real clinical entities. The problem can be greatly simplified by throwing overboard or putting aside the headings like gastritis, gastroptosis, gastric neurasthenia, peristaltic unrest, gastrosuccorrhea, or auto-intoxication, which do not mean very much. Some of you may not agree with me on this point, but I can only say that if gastritis produces any symptoms, I do not know what they are. It seems to be present only as a complication of other diseases, and is rarely found at the necropsy. Enteroptosis is found just as commonly in husky normal university students as in office patients, and the leaders in gastro-enterology no longer pay much attention to the position of the stomach in the abdomen. Gastrosuccorrhea was one of the names under which duodenal ulcer was known twenty-five years ago, and so I could go on through the list.

The essential diseases which every man should know, the common ones which are seen every day, are: Cholecystitis, with or without stones, duodenal ulcer, subacute and chronic appendicitis, carcinoma of the stomach and colon, and gastric ulcer.

Cholecystitis. The patient is generally a woman who has had bilious spells and headaches at intervals since childhood. She may have had one or more attacks of severe abdominal pain, perhaps needing morphin. Pain begins under the lower ribs in front on the right side and radiates to the right shoulder-blade. The distress comes more or less in attacks with intervals of perhaps several years. After these attacks the abdomen may be sore and the eyes may get a little yellow. In between there is generally more or less belching and bloating. This often wakens the patient about two in the morning. In spite of a good appetite she is afraid to eat, although she admits that it really does not make much difference whether she eats or not because sometimes a glass of milk may keep her awake all night and at other times she may eat a large meal with impunity. She will probably be severely constipated; she will often have attacks of dizziness; her heart may give her some trouble, and not infrequently she will complain of some arthritis.

Duodenal ulcer. The patient is generally a man and his trouble can often be traced back to the twenties. The characteristic symptom is pain or distress in the epigastrium coming two or three hours after meals and relieved by the taking of food or alkalis. This distress comes in attacks, which in the early years of the disease may last a month or two. The patient will then go for six months or a year entirely free from symptoms. The syndrome of mild reverse peristalsis is often present. The vomiting of blood is comparatively rare. As the patient grows older the trouble becomes more constant and less amenable to treatment.

Chronic appendicitis. Usually the patient is young and traces his trouble back to the age of sixteen or thereabouts. He may have had one or more attacks of pain in the epigastrium with some nausea or a little fever. Perhaps someone wanted to operate on him. Since then he has felt dopey, below par; he fills up quickly when he begins to eat; he has some flatulence and he is more or less conscious all the time of his appendiceal region.

Cancer of the stomach. There are two main types of history. The most pathognomonic is the one in which the patient says that he has had a perfect digestion up until a few months before, since which time he has had a dull pain or ache in the epigastrium, more or less constant, and not much influenced by food. He has lost his appetite and he is rapidly losing weight and strength. He may occasionally have had severe vomiting spells. In the other type there is a history of long-standing gastric ulcer with attacks of pain, more or less relieved by food, and with intervals of complete relief. Then the symptoms become more severe and more constant and the patient begins to go down hill.

Carcinoma of the colon. The typical picture is that of an old man or woman who has always had good bowel movements until he or she began to have attacks of mild intestinal obstruction. Since then there has been more or less constipation, perhaps some intestinal colic and flatulence, and at times the passage of some red blood.

Organic diseases outside the digestive tract. In addition to these organic diseases within the digestive tract, we must always keep in mind those organic diseases outside the tract which produce indigestion. The first symptoms of tuberculosis are often referred to the stomach. The first sign of a failing heart may be flatulence and epigastric distress. Pelvic disease in women may cause nausea and other symptoms of reverse peristalsis. Hypertension is one of the most common causes of epigastric distress, dizziness, "auto-intoxication," and other symptoms which make the patient think he is "bilious" and that he should consult a stomach specialist.

Functional disturbances. Finally, when you are quite certain from the vague history and from the negative roentgenologic findings that the patient has no organic disease in the digestive tract; when there has been no pain and when the patient appears to be making mountains out of molehills, you may fall back on the diagnosis of a "functional trouble." You will be wise, however, if under these circumstances you refrain carefully from telling the patient that there is nothing the matter with her. Why? Because you will keep from offending her, and because your chagrin will not be so great later if you hear that some surgeon has taken "a handful of neuroses" out of her gallbladder, a tumor off her brain, or a carcinoma from her colon. I generally tell these patients that I have not been able to find anything seriously wrong; that I think their troubles are due mainly to tired little nerve cells which are crying out for rest, and I say to them, "I want you to have sleep and rest and I want to lighten the work of your digestive tract by giving you a smooth and easily digested diet. Try these measures for a month or two and then let us see what is left of your symptoms. If they all go, we shall be happy. If some go and some stay, or particularly if they all stay and get worse, we shall know that there is something radically wrong, and we will hunt for it again until we find it."

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DISCUSSION

WILLIAM N. ANDERSON, M. D., Omaha: One hesitates to attempt a discussion of such a brilliant talk as Dr. Alvarez has given us, but it brings to us some bit of research work all of us might do, and calls our attention to the fact we have within our own beings, in our hands and eyes and common sense, just as much ability as any of the instruments of precision we have in medicine today. I think that is the most valuable part of the paper. I hope the time will come when there can be a statistical study of symptoms so as to show us the averages of these various symptoms, instead of a statistical survey of results which we have constantly talked about.

In the care of gastrointestinal disease, I think a research along the line you have started will mean more, so far as the progress of intestinal diseases is concerned.

We have constantly had this bugbear of surgical versus medical cure of gastrointestinal diseases. We have realized certain of these things have distinctly a surgical outlook, and certain have a definitely medical outlook. I think we are not getting together on the proper diagnosis. We are having this constant fifty-fifty quarrel between ourselves as to which is the better method of treatment. We know in the hands of certain surgeons, good results are obtained in one procedure. In the hands of another surgeon, the same procedure is fraught with difficulty and failure.

I am reminded of a discussion in Philadelphia in which they were talking about the Finney operation for duodenal ulcer. After they had cussed and discussed it, an old fellow from the province stood up and said, "Gentlemen, I am only a poor country doctor, but it seems to me that the operation performed by Finney and the operation which you gentlemen are discussing are two different propositions."

That always is the end of such discussions. I think this address will bring to all of us the fact we should get down to the study of basic symptoms of these things in the hands of every one of us. It is an exceptionally good address from that standpoint.

JAMES F. McDONALD, M. D., (Omaha): I have been much impressed by Dr. Alvarez' address which embodies a masterful combination of science and common sense in the interest of clinical diagnosis of gastro-intestinal lesions. I should like to ask him to what extent he utilizes the principle of referred pain in differential diagnosis. I mean pain referred from a diseased viscus, and felt in the skin or deep tissues of the body wall (trunk, head, neck and extremities), as described especially by Head of England. Various authorities have divergent views as to the extent that referred pain is practically valuable in differential diagnosis. I should be interested in obtaining Dr. Alvarez' opinion as to what extent he finds this principle helpful is differential diagnosis of lesions which disturb the viscera.

GEORGE W. COVEY, M. D., (Lincoln): The talk has been of unusual interest to me because I find myself in a great deal of difficulty often to get the time and take the time and pains to go into the history in anything like the way Dr. Alvarez has suggested this afternoon.

I was interested in hearing him last night telling about one of his experiences in which he said he wanted to get some information. He had a little book, and no matter how many were waiting or how much work he had to do, when he got through with a patient's history, he took the time to write the information he wanted in that little book. If we are going to make good diagnoses that will hold water in which, if we turn to the history six months from now or ten years from now, we will find it is complete enough so that we can go over the ground and make the same diagnosis again, we must take time and pains to get the history.

I believe this talk by Dr. Alvarez has impressed this upon me more than any other I have ever heard. I have had a great deal of this in the back of my mind before I heard it put together in this talk. It has been not only instructive, but inspirational, to me to hear him urge so forcibly the necessity of taking the time and pains to get the history and write it down. I want to thank Dr. Alvarez for his talk.

E. L. McQUIDDY, M. D., (Omaha): We have certainly all enjoyed the address by Dr. Alvarez. There are two or three points which I should like to ask Dr. Alvarez about. The first is whether he considers a baggy condition of the stomach as an entity? We have those people coming to us in which we can get nothing definitely traumatic except a large, baggy stomach which probably holds three times as much as it should. You have them both with hydrochloric and without. Putting them in proper position and holding them there for a certain length of time, the stomach resumes a normal shape again. Does he consider that a clinical entity which we probably overlook a good part of the time, which could be cured pretty nearly as readily as a gastric ulcer?

There is another question, and that is in regard to the patient who comes complaining of nervousness—some vague abdominal distress which you have a hard time pinning on the stomach, yet if you do a careful examination, the stomach had no hydrochloric whatever. They have not enough digestive disturbance to warrant giving hydrochloric in large amounts, yet it is the only definite gastric symptom you have. I have had at least six of such cases the last year.

D. T. QUIGLEY, M. D., (Omaha): I should like to ask a couple of questions. First, I should like to ask Dr. Alvarez, if he will, to give us a little information on what he has learned on the etiology of duodenal ulcer. The other is the gastrointestinal symptoms associated with mild attacks of tuberculosis. In addition to that, Dr. Alvarez, we have occasional cases who find soda relieves them; and some of these patients have relief just from eating sugar or candy. This is to me an unusual thing — it is an exceptional thing. If you can give us something about that, it would be helpful.

DR. ALVAREZ (closing): In regard to ptosis, I agree with Dr. McDonald that patients with long flabby types of stomach often have gastro-intestinal symptoms, and that they will often be helped by rest in bed, but I do not think that these symptoms are due to the ptosis. I did once, long ago. In 1912, when I got my first roentgenoscope from Vienna, and saw stomachs stretching down into the pelvis, I became excited about them and thought I must do something to put them back where Gray in his "Anatomy" said they should be. But soon I began to find such stomachs in athletes, in physical instructresses, and in professional dancers, all with strong abdominal walls. Most of them were in perfect health so I was soon forced to the conclusion that their long stomachs were normal variants, without medical significance. Finally Moody, Van Nuys and Chamberlain roentgenographed 600 of the huskiest and healthiest students on the University of California campus. Two hundred of these were athletes taking courses in physical education. Some enteroptosis was found in 70 per cent of the women and in 50 per cent of the men, and severe grades were found in 48 per cent of the women and in 30 per cent of the men, all of them with good digestion and good health. Obviously, the position of the stomach in the abdomen must be unimportant. Many years ago while visiting at the Mayo Clinic, I remarked to Moore that he had not made the diagnosis of enteroptosis once in three days, during which time I had seen him screen 120 patients. He said, "No, we got over that years ago."

I do not question what the Doctor says about the relief obtained, but I think it is due to the rest and the better diet. Do not raise the foot of the bed. You will get as good results with a level bed, and the patient will be more comfortable.

Now as to achylia. If you examine 100 university students, you will find achylia in 4 or 5 per cent. These individuals will not necessarily have gastrointestinal symptoms. We do not know if any of them will develop pernicious anemia later. Hurst and Vanderhoof think they will. Some of them are congenitally frail and below par so that they may be more susceptible to various troubles. More work must be done on the problem.

The etiology of duodenal ulcer is too big a problem for discussion in a few minutes. I feel like the man who received a questionnaire sent out by some professor of sociology asking him to state just why he had gotten married. He simply wrote across the face of the questionnaire, "Now don't go and get me all stirred up." I think also of Brer Rabbit in the negro stories. As Uncle Remus says, "Brer Rabbit he ponner and ponner, an' the more he ponner, the more he dunno." That is the way with the literature on the causes of ulcer; the more you read, the more you don't know.

Someone may say, "But focal infection is the cause of ulcer." Quite so; it may be well that it is one of the causes, but why do the shallow acute ulcers produced by the injection of bacteria heal immediately, and why do the ulcers in man remain chronic? So far as we know men and women are equally subject to focal infection. Why then, at the Mayo Clinic do we see four men with ulcer to one woman, and why at Mount Sinai Hospital, with a different clientele, do they see ten men to one woman? Why does duodenal ulcer appear usually in the twenties while gastric ulcer appears in the thirties or forties? When we get at the real cause, we will know just why these things are. Acute ulcers can be produced in many ways, but as Aschoff says in his book, what we want to know is what makes an acute ulcer chronic. Furthermore, a duodenal ulcer in a young man may be one thing, and a gastric ulcer in an older woman may be quite different. In the latter, the cause is sometimes arteriosclerosis, with plugging of a gastric vessel. Some of the most encouraging work on the problem has been done recently by Mann. He is producing chronic perforating ulcers at will, so we may soon have answers to many of our questions.

Gastro-intestinal symptoms in tuberculosis are important and I should have mentioned them. The first symptoms of pulmonary tuberculosis are often a lack of energy, a failure of appetite, and a feeling of indigestion. It is easy to make mistakes with these patients, and I know I have often been deceived until some symptoms appeared which made me think of a pulmonary lesion. The chest must always be examined carefully as well as the heart, and, in women, the pelvic organs. In the later stages of tuberculosis the indigestion may be due largely to ulceration of the bowel.

As to sugar relieving symptoms, that would suggest the presence of a low blood sugar. As a general rule, it is a good thing to advise dyspeptics not to take sugar in concentrated form. It may interfere with starch digestion, and may cause flatulence.

In reply to Dr. McDonald, I will say that I have often looked for Head's zones in cases of ulcer and cholecystitis, but have seldom been able to demonstrate them. I doubt if they have much value in diagnosis. The one place where I have found them is in cases of angina. The easiest way to show them is to run the point of a pin over the patient's skin. When the hyperesthetic zone is reached, he will jump or pull away.

THE ETIOLOGY AND PATHOLOGY OF GASTRIC ULCER

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ETIOLOGY

The etiology of gastric ulcer is not established in all particulars and is not common for all instances.

We know that ulcers of the exposed surfaces have different causes. Among them may be mentioned infectious, circulatory disturbances, trauma and escharotics. Ulcers of the unexposed surfaces are subject to the same influences and in addition those peculiar to their location and function.

The laboratory methods which have been used to produce gastric ulcers are quite numerous. Among the most important ones are the following: Corrosive substances—Silver nitrate, phenol, mercuric chloride, sodium hydroxide and others have been used to produce ulcers but they are acute in type and heal readily. The chronic lesion does not follow.

Trauma: Ritter is given credit for producing separation of the mucosa of dogs by blows over the stomach. He believed that the separation was not mechanical but that the blow resulted in congestion or hemorrhage and that erosion followed because of digestion of the damaged tissue. Healing was prompt.

Infectious Agents. Lebert, in 1857, before infectious agents were known, injected pus into the veins of laboratory animals and produced ulcers. The well known work of Rosenow deserves mention and emphysis. He found that "streptococci, irrespective of their source, when of a certain grade of virulence, exhibit affinity for the gastric mucous membrane. When injected intravenously ulcer of the stomach and duodenum follow". He concluded that secondary digestion followed localized infection. Nakamura isolated streptococci from ulcers and injected them into rabbits. He used 66 animals and 70% of them developed ulcers of the stomach and duodenum. He also isolated streptococci from the joints of patients with arthritis and these localized in the joints in the majority of instances. There were lesions in other viscera but these were in the minority. The selective action of bacteria must be recognized as a common property. Diphtheria bacillae are found in the mucosa of the pharynx and not in the viscera. Typhoid bacillae select the ileum. We find lesions produced by tubercle bacillae in the lungs, lymph nodes, bones and a few other tissues. We do not look for tubercles in the muscles but habitually examine the spleen.

Burns: Burns of the skin have been followed by gastric ulcer in a small per cent of laboratory animals experimented upon.

Gastro-jejunostomy: Mann and Williams sectioned the duodenum at its junctions with the stomach and jejunum. The upper end of the duodenum was closed. The stomach was anastomosed with the jejunum. The lower end of the duodenum anastomosed with the ileum. This condition emptied the gastric content directly into the jejunum and the duodenal content into the ileum. Ulcers invariably occurred in the jejunum where the mucosa was bathed in the acid gastric juice. The important feature of a very typical chronic ulcer also resulted. When the operation was undone and the normal circuit again established the ulcers healed spontaneously.

Gastro-toxic Serum: Ulcers have been produced by the injection of serum which was made by using guinea pig's stomach mucosa as antigen in rabbits and then using the rabbit's serum for guinea pigs.

The etiology of gastric ulcer in man is believed to be dependent in part on the following conditions:

Age: The usual age is in the third decade. The average is ten years older for the male. About 0.1% occur before the age of ten and about 9.0% above the age of 50.

Occupation: Ulcers are found in individuals of all occupations but they are slightly more frequent in cooks. This has been explained by the fact that odors and mincing frequently stimulate the flow of gastric juice and also that burns are frequent.

Dietetic Errors: These include mincing which stimulates the flow of gastric juice and also the taking of much acid food.

Injuries of the Mucosa: Trauma may be a factor. Fertig found four gastric ulcers in the stomach of a man who had been killed by a mule kick. A small per cent of the patients will give a history of trauma. Hemorrhage into the gastric mucosa is a frequent finding in toxemias of different types. It is possible that these are followed by erosion. Damage by chemicals, foreign bodies, the accumulation of food between the rugae may have some influence. Perry and Shaw found a history of burns in 3% of a series. It is probable that in the destruction of skin by heat there is some histamine like substance liberated which damages the mucosa.

Infections: Dysentery, pneumonia, measles and other infectious diseases are known to be associated. Leutelle found an ulcer in a patient who died of dysentery, isolated an organism from it and produced ulcers in guinea pigs by injection of this organism. Focal infections are believed to play an important part. The site of the focus is not important because the toxin or bacteria must reach the mucosa by way of the blood stream. It is very probable that infections of the gall-bladder are important because here there is the additional path through the lymph stream for infectious agents and products to reach the stomach.

Hyperacidity: Hyperacidity may be present without ulcer. The converse is not true, however. The typical peptic ucler is only found where the gastric juice comes in contact with the mucosa, or the stomach, duodenum, esophagus and the small intestine after gastro-enterostomy. The work of Mann and Williams well illustrates the role of gastric juice and indicates that it is very important. The presence of hydrocloric acid is essential. Less attention has been given to pepsin. Digestion is not possible without it and it is inactive in vitro and in vivo in the absence of acid.

PATHOLOGY

Usually gastric ulcers are solitary but about one-fourth are multiple. Their location in the order of frequency is as follows: Lesser curvature, posterior wall, pylorus, anterior wall, cardia, greater curvature and least of all the fundus.

The recently formed ulcers are circular and include only the mucosa. The older ones are irregular, shelved, may be undermined and are surrounded by induration. They are unusually 3 cm. or less in diameter. One is reported by Peabody which covered a surface area of 10 by 19 cms.

The tissue changes are ulceration, inflammation and the production of granulation tissue, or the healing process.

Ulceration is the result of damage to the mucosa with subsequent digestion by the gastric juice. It has not been shown, however, that the damaged mucosa cannot be broken down by the chemical action of hydrochloric acid alone. Most frequently the defect involves the mucosa only, the muscle being more resistant. Later the musculature and the serosa may be eroded but the defect in these coats is smaller. Undermining, if present, is on one side only and is believed to be the result of forcing foreign material into the more delicately constructed submucosa.

The inflammatory changes include leukocytic infiltration and degenerative changes of the granulation tissue. Eearly, polymorphnuclear cells predominate but in the older lesions lymphocytes and endothelial cells are most abundant. Occasionally there are great numbers of eosinophiles. Fibrinous exudate is sparse unless the lesion is seen at a time when progress is rapid. These changes should not be interpreted to be the result of infection alone but also the result of irritation from gastric juice and other foreign material.

Granulation tissue varies in amount according to the time the lesion has had to repair and the power of the tissues to regenerate. It may be so large in amount that the induration mass resembles a neoplasm. The granulation tissue wall may keep in advance of the ulceration process so that perforation of the stomach may take place without the escape of gastric content. As the surface exudate is organized the viscera in juxtaposition are firmly bound to the lesion. The nuclei of the fibroblasts are usually picnotic, their cytoplasm shrunken and the fibrils separated by edematous fluid, evidently the result of long irritation by foreign substances. Many of the small blood vessels in the old lesions are closed and not functioning. The arteries are thick walled. If the ulcer is small and does not become chronic the repair will be very perfect. The older and larger lesions will leave a scar that is readily demonstrated. If the scars of peptic ulcer are carefully looked for routinely at the necropsy table the instance is found to be surprisingly high and indicate that the greatest number of them heal spontaneously. This fact should influence their treatment.

DIAGNOSIS OF GASTRIC ULCER*

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The notion that the diagnosis of gastric ulcer is one of the simplest in the course of the day's work, is too prevalent. Sir Berkeley Moynihan is credited with having used words to the effect that the diagnosis of gastric ulcer is so easy that it can be made over the telephone. I find more truth and comfort in Moynihan's statement, that "Gastric ulcer is a disease of comparative rarity; its diagnosis from clinical evidence alone is difficult; its mimickry by other conditions extremely frequent."

The diagnostic approach in any patient presenting himself with a major complaint of stomach trouble with symptoms sugestive of ulcer should be (1) a careful and painstaking history with particular inquiry as to the type of pain, its location, periodicity, relation to food taking and response to alkalies; (2) a complete physical examination including a survey of the nervous system and certainly a careful examination of the exposed abdomen; (3) routine laboratory examinations including a complete blood count, urine, blood Wassermann and test meal and stools. Inasmuch as this phase of the question will be more fully discussed by Dr. Miles Breuer I shall only state that in spite of the tendency to disregard the test meal and stool examinations, I personally believe in their routine use unless definitely contraindicated; (4) an x-ray examination including the use of plates and the fluoroscope—this examination to be made by one competent to see and interpret his findings. Occasionally it may be necessary to repeat the radiographic work following the use of large doses of belladonna before the presence of an ulcer can be definitely proven, or eliminated. Inasmuch as statistics show that fully 90 per cent of cases of gastric ulcer can be diagnosed radiographically it would seem unnecessary in urging its use as a routine procedure. And yet, I regret to state that many clinicians are satisfied to make their diagnoses on history and laboratory findings alone. My own notion is that the independent views of the radiographer and clinician are advantageous, or perhaps better, a clinician trained in radiographic interpretation. It has been part of our practice for a number of years to refer gastro-intestinal cases to the radiographer without submitting a history or laboratory findings or even suggesting the diagnostic possibilities which we are considering; (5) and finally, I believe that one is justified, especially in doubtful cases, in hospitalizing patients with an ulcer syndrome for observation, paying particular attention to the effect of food and alkalies and to repeated examinations of the stools for blood. This I might add is a common practice in some quarters and certainly is a far safer procedure to follow than to "look in and see."

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Inasmuch as ulcers of the stomach may be acute or chronic and as they may be single or multiforme it is logical to assume that the symptoms must vary accordingly. Undoubtedly many acute ulcers are healed in a comparatively short time without producing any marked symptoms or leaving scars. In a typical gastric ulcer the major symptom is pain. This is variously described as being gnawing, burning or boring in character. Its chief characteristic is periodicity. Although the time of occurrence and the location of radiation of pain are suggestive as to the location of the ulcer—radiographic evidence is much more accurate. Relief is obtained by food, alkalies and vomiting. The spells of stomach distress are daily, occurring after each meal and the patient can invariably definitely forecast the time of pain onset.

Vomiting is probably the next most important symptom. It is interesting to note that in spite of a definite lesion in the stomach vomiting is much more apt to occur in other intra-abdominal conditions than in gastric ulcer. The vomiting in ulcer occurs usually after a heavy meal during the height of the pain and invariably relief follows. When vomiting is persistent and occurs independent of the intake of food or fluids one's suspicions should always be aroused and a search for some extra-gastric lesion made. If vomiting is a pronounced symptom with other evidence of gastric ulcer at hand the ulcer is usually near the pylorus and is causing obstruction.

Hemorrhage whether manifested by blood in the stools or in the stomach contents is probably one of the most misleading symptoms in the diagnosis of gastric ulcer—statistics from various sources show that hemorrhage occurs in about 25 per cent of cases of gastric ulcer. It is much more frequently associated with cirrhosis, splenic anemia, focal infections and not infrequently accompanies appendicitis and cholecystitis. Although a hemorrhage severe enough to cause collapse and evidence of a marked secondary anemia may occur in gastric ulcer, it is rare, and invariably there is a history of long standing stomach trouble antedating the onset of the hemorrhage.

Inasmuch as the cardinal symptoms of gastric ulcer are abdominal pain, hemorrhage, and vomiting, any one or a combination of symptoms justifies a careful investigation and because these symptoms occur in so many other conditions the diagnosis of gastric ulcer probably demands a more careful differential diagnosis than any other intra-abdominal condition.

Although within the province of my subject time will not permit a discussion of the various complications of gastric ulcer such as obstruction adhesions and perforation, I think it more profitable to consider with you a few of the conditions which simulate gastric ulcer. To attempt to enumerate them all would be an imposition. Case histories with findings and in many instances operative reports would be the ideal method of presentation but I must content myself with a somewhat text book-like description of the more important.

Gastric and duodenal ulcer are now frequently discussed under the term of peptic ulcer, and yet, there are many points of difference in the symptomotology. The pain in gastric ulcer usually comes on within one to three hours after eating, while in duodenal ulcer it is generally from two to four hours. Relief is often complete in gastric ulcers except when near the cardia, while in duodenal ulcer it generally persists often until another meal is eaten. According to statistics, gastric ulcer occurs less frequently, is more apt to be accompanied by vomiting and shows a greater tendency to become malignant than duodenal ulcer. Seasonal variation with remissions is characteristic of both types, but is less common in gastric ulcer.

Cholecystitis and cholelithiasis, now commonly job-lotted as gall-bladder disease, are not infrequently confused with the diagnosis of gastric ulcer. Little difficulty is experienced in definitely determining a classical case of gall-bladder disease characterized by intense pain in the upper right quadrant or epigastrium, radiating to the right shoulder blade, accompanied by nausea and vomiting and of such severity as to require morphine for relief. It is those cases complaining of "chronic dyspepsia" with symptoms suggesting gastric ulcer that cause confusion. Added difficulty arises when the radiologist reports a filling defect, which may be due to adhesions between the gall-bladder and stomach. The pain is more apt to be persistent regardless of the time of food taking and is less influenced by alkalies. Owing to the frequent association of gall-bladder disease and gastric ulcer it is often-times impossible to make an accurate preoperative diagnosis. The recent work of Graham and others in the use of cholecystograms should be especially helpful in differentiating these cases.

Credit is particularly due to the surgeons in recognizing the difficulty in differentiating appendicitis from gastric ulcer. This they learned from the fact that failing to find evidence of gastric pathology, they have observed an ulcer syndrome disappear following the removal of a diseased appendix. Additional confusion in diagnosis is added when the picture is obscured by a profuse gastric hemorrhage. Careful history taking, leucocyte counts and radiographic evidence are necessary for an accurate differential.

It may seem far fetched to mention epigastric hernia as a condition simulating gastric ulcer. In 1922, Dr. A. J. Brown read a paper before this society in which he clearly presented the subject and cited three cases which were featured by gastric hemorrhage. Roeder in his discussion remarked "I have had four cases of epigastric hernia, one giving a perfect symptom complex resembling gastric ulcer" and he tritely remarks "I think it is a condition frequently overlooked, more through a lack of careful examination."

Advanced cases of syphilis of the stomach with radiographic evidence of stomach deformities all out of proportion to the amount of actual stomach distress with accompanying earmarks of syphilis elsewhere as tabes or aneurism and with an almost constant absence of free HCl, presents a definite clinical picture. Neverthless the differential diagnosis from gastric ulcer is not always so easy. At the present time we have under observation three cases who presented themselves with a major complaint of stomach trouble in which was written enough ulcer history so that one patient had been diagnosed and previously treated as an ulcer. All three had negative x-ray reports—one a total absence of free HCl, and the others normal acid curves. Two had blood in the stools. All three presented no other demonstrable signs of syphilis except a positive blood Wassermann. I am free to confess that the practice of routine Wassermanns spelled these cases. It might be of interest to know that all are ambulatory and that in the absence of any dietary restrictions or other medication except antiluetic treatment, they are making satisfactory improvement. Eusterman, Coleman and others have reported cases of true gastric ulcer occuring in cases of tabes.

Carcinoma of the stomach in its advanced stages with emmaciation, palpable masses, constant pain, absence of free HCl and positive x-ray findings is generally easily diagnosed. However, those cases diagnosed gastric ulcer, especially in patients past forty years of age, in whom the pain becomes more constant, showing less tendency to food and alkali relief, with a decreased acidity curve and constant blood in the stools are worthy of mention and in my opinion should be urged to undergo an exploratory operation to definitely determine whether a supposed benign ulcer is not actually undergoing malignant changes.

Hyperacidity and so-called gastric neurosis present many symptoms suggesting gastric ulcer. The pain is usually less acute, lacks the characteristic periodicity of gastric ulcer, there being good days and bad days regardless of diet and the use of alkalies. Likewise x-ray evidence is negative. The neurosis presenting ulcer symptoms, along with evidence of functional disturbances of other organs is a particularly difficult diagnostic problem. One needs have but one experience as I once had in a patient who gave considerable history of gastric ulcer, but who manifested so many other signs and symptoms of a fixed neurotic that a complete gastro-intestinal examination was considered unnecessary. Some months after I saw her at my office I was called to see her at her home, when she presented classical signs of an acute perforation which were verified at the operation. I had the misfortune to sign the death certificate — "Diagnosis perforated gastric ulcer" — simply because I was misled by the numerous definitely functional complaints associated with her gastro-intestinal symptoms.

I think it worth while to once again quote Moynihan when he says—"If all the methods of examination are brought strictly to bear upon cases commonly referred to as 'gastric ulcer' it will be found that in a majority the diagnosis cannot be upheld. The diagnosis of gastric ulcer is loosely and inaccurately made, a host of other diseases, functional and organic alike, are so described and in consequence the belief is widely upheld that gastric ulcer is a common disease. It would be more accurate to call it a rare disease. Over a series of years I find that for every gastric ulcer there are four or five duodenal ulcers, and five to six cases of cholelithiasis. A gastric ulcer is by no means easy to recognize, even after the most scrupulous inquiry and examination. More mistakes are made in the diagnosis of gastric ulcer than in any other abdominal disorder."

In conclusion, I wish to briefly outline the following as a safe procedure in establishing the diagnosis of gastric ulcer.

1. A careful and detailed history in all cases of gastro-intestinal disorders, especially those in which ulcer symptoms are featured.

2. A complete general physical examination including laboratory findings.

3. Routine x-ray examination by a competent radiologist.

4. Hospitalization of patients presenting ulcer symptoms for the purpose of further observation, especially to note the details as to the time of pain, its relationship to food taking and its response to alkalies.

—630 Bankers Reserve Life Bldg.

THE LABORATORY DIAGNOSIS OF PEPTIC ULCER*

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This is intended to be a quick resume of the present status of the clinical laboratory in the diagnosis of peptic ulcer, rather than a minute inquiry into technical or controversial details. When we refer to the use of the clinical laboratory in the diagnosis of ulcer, we may refer to the diagnosis of the presence or absence of the ulcer itself, or to the study of etiological conditions and the follow-up of therapeutic measures. Let us consider the former thesis first.

The methods used in the laboratory for the diagnosis of ulcer, are the study of the gastric contents, including acidity, blood, lactic acid, and microscopic elements; the string test; and the testing of the feces for occult blood.

Considering first the study of the gastric contents, an immense amount of work has been done in attempting to correlate the findings of this class of laboratory methods with the existence of ulcer. The main efforts have been toward studying the reaction produced on the gastric secretion by test meals of various types, but differing from each other only very little essentially. Some writers think they have established that a certain type of curve of free and combined acidity as studied by the fractional method, is associated with the presence of ulcer.

Almost the only method used today for the purpose of the study of the gastric contents, is the fractional method with the small, or Rehfuss tube. It is practically universally accepted that the single specimen, withdrawn an arbitrary length of time after the test meal, gives no information regarding what is going on in the stomach, because of the different rates at which even normal stomachs react to a meal. However, the value of the fractional method is by no means soundly established. Numerous workers have shown that the gastric contents are not a homogeneous mass; and that a small specimen of them, withdrawn through a Rehfuss tube, is by no means an index of what is going on in the stomach; and that the results obtained by the fractional method may vary widely, depending on the position of the tip within the stomach. At the present time, we are as yet uncertain as to the correct technic, or the proper interpretation of the fractional gastric analysis.

The real difficulty in estimating the value of the curve of gastric acidity as a criterion of the presence of ulcer, is the difficulty of an absolute proof for the presence of the ulcer. A medical writer presents a mass of statistics, showing that such and such curves of gastric acidity were associated with gastric or duodenal ulcer. I want to know how he could tell that there was an ulcer there. If he did not check up his diagnosis either by operation or at post-mortem, or by the occurrence of a perforation, I am very skeptical about his ulcers. Both clinical symptoms and laboratory findings of peptic ulcer are produced by numerous reflex conditions, such as appendicitis, gall-bladder diseases, pyelitis, pulmonary diseases, etc., that they are in no way whatever pathognomonic of its presence. The writers of a generation ago, and those who thoughtlessly copy them, insisted on the value of a history in the diagnosis. Today those symptoms and laboratory findings may mean to us an ulcer, or any one of a half dozen abdominal or thoracic conditions. Personally, I do not believe in the presence of an ulcer unless I have seen it in the x-ray, operating room, post-mortem room, or seen a perforation. Not even a hemorrhage is proof of an ulcer. Bleeding may be due to esophageal varices, hemorrhagic diatheses, carcinoma, rupture of arteriosclerotic vessel, or reflex congestive oozing in appendicitis, cholecystitis, etc. (Llewelys F. Barker; J. A. M. A. 85:18:1382-5). On the other hand, ulcers may exist without a single symptoms or laboratory finding, and be discovered only at operation, post mortem, or by the sudden occurrence of a perforation.

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Smithies (*A. J. M. S.* CLXVI, *781*) gives a report of an accurate study of gastric acidity curves and their association with the presence of ulcer, which dismisses the subject at once. He reports only such cases as were accurately checked up for the presence of ulcer; and cites cases in which the presence of ulcer was associated with very low, even zero free acidity and low total acidity, and on the other hand cases without ulcer, in which the acidity was very high; much higher than the figure usually given as typical for ulcer.

Passing from the question of gastric acidity to that of the presence of blood in the gastric contents, we find that this has already been answered partially. The question of occult blood in the stools is dealt with by exactly the same arguments. The presence of blood in the upper gastro-intestinal tract may be due to too many other causes to permit us to attribute to it any pathognomonic significance. And the absence of it does not necessarily rule out ulcer; an ulcer may be present and yet not bleeding enough to betray its presence.

When we begin to pick out yeast cells, sarcinae, lactic acid, and food ingested on the previous day, we are dealing with obstruction at the pylorus; but we do not know if it is cicatricial and secondary to an ulcer; or whether it is spasmodic, and due to anything from an ulcer to appendicitis, gall-bladder disease, or pulmonary disease. If the obstruction persists after the use of atropine and non-irritating diet, and if we conclude that it is organic, we may consider that laboratory methods have gotten us on the trail of an ulcer. If the obstruction turns out to be spasmodic, it may or may not be ulcer, and other means must help us decide.

The gist of the above discussion is, that laboratory methods provide no means by which a routine procedure will enable us to decide definitely on the presence or absence of a peptic ulcer. However, this discussion is not in any way intended to condemn the use of these diagnostic methods. They are useful and valuable in the hands of the practitioner. While the worker in the research laboratory or hospital may confine his efforts to the study of disease, or of a disease, today the chief duty of the practitioner is to study his patient, rather than some disease. In actual practice, the study of a patient is never complete; never, except in the post mortem room, can one be so sure of his diagnosis and his treatment, that he can afford to neglect any good means of obtaining information. The practice of being routinely thorough has repeatedly revealed unexpected and important conditions in a patient.

In addition to the matter of establishing the presence or absence of an ulcer, modern conceptions demand a diagnosis of the etiological conditions. The view today is that instead of being a disease entity in itself, peptic ulcer is a local accident in a systemic process. Smithies gives the following list of general conditions in which ulcer is a manifestation:

1. Infections, chronic and acute;
2. Arteriosclerosis;
3. Visceral (vagus or sympathetic) hypertonia;
4. Visceral (vagus or sympathetic) hypotonia;
5. Chronic general anemia (so-called "chlorosis");
6. Syphilis;
7. Postoperative;
8. Industrial or occupational intoxications;
9. Metabolic or endocrine dysfunction;
10. Trauma; external abdominal injury; intragastric, from foreign bodies).

Naturally, it is the physician's duty, while taking care of the acute accident, which we term the ulcer, to look for the general causative condition. This requires a very thorough study of the patient; and if we understand by the laboratory diagnosis of ulcer, the running down of the original etiology, it will embrace the entire realm of laboratory procedures at the modern clinician's disposal.

Now that the glands are the fashion as a panacea for every ill or want, why not give the sweat glands a good tryout and see what happens?—San Diego Union.

NOT HER KIND

Husband—"It says here that the newest fad is to adopt a chicken for a pet."

Wife—"Just let me catch you doing it."

ROENTGEN RAY EVIDENCE OF GASTRIC ULCER*

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In recent years the roentgen diagnosis of gastric ulcer has become more stabilized and the percentage of correct interpretations has gradually increased. This is not due to any spectacular advance along a single line but rather to attention to details and a more thorough radiologic knowledge of the stomach.

Were it not for the "bug-bear" of spasm the diagnosis would be greatly simplified and a higher average of correct findings would be attained. Undoubtedly many spastic conditions of the gastric lumen are diagnosed as lesions by the inexperienced roentgenologist. One has to be constantly on guard to cope with these puzzling simulations of pathology which are generally secondary to lesions elsewhere within the abdomen or chest.

In ruling out such conditions we should make frequent use of the tincture of belladonna given to physiologic effect. This does not mean giving a few drops of the drug and immediately proceeding to examine the patient. It usually requires fifteen drops every two hours for seven or eight doses as a minimum. Some patients require more than this amount. When the physiological effect is reached a high per cent of spastic conditions will be overcome and, therefore, not act as a barrier to the correct interpretation of gastric ulcer.

A simple technique should be chosen using the same barium meal whenever possible, so as to become thoroughly acquainted with its appearance on the fluoroscopic screen. No cathartics should be given for forty-eight hours previous to the roentgen examination as they set up abnormal peristalsis. All medicines should be discontinued as they may effect the gastric motility or secretions. The patient should come in with an empty stomach to avoid any liability of food particles interfering with the examination. The meal may consist of a small amount of cereal, malted milk and acacia thoroughly mixed with barium sulphate.

The combined use of roentgenscopic and radiographic methods gives one the greatest amount of information. Certainly much valuable knowledge can be obtained by observing the action of the viscera on the screen especially when aided by palpation. It is also equally true that roentgenograms give us permanent clear cut records full of detail that may be studied and filed for future reference.

A series of radiographs should be made in order to show the different phases of peristalsis in the stomach. A sharp peristaltic wave may simulate an ulcer on one film while on the next one it may have disappeared entirely. Thus, a series of films give one a good idea of gastric motility whether it be normal or abnormal. If a permanent niche is discovered it is pathognomic of gastric ulcer and the diagnosis is easily made. Cases complicated by spasm require careful study.

Both the internist and the surgeon are placing an increasing confidence in the carefully conducted roentgen examination as an aid in the diagnosis of peptic ulcer. It is deplorable when a patient is sent in for a hurried examination with an order to "take a look at stomach", and allowing the roentgenologist only a few minutes to study the patient. A high rate of efficiency cannot be expected from such a procedure, and the radiologist should not be expected to give information that he is not given time to obtain. The distinction between ulcer and early carcinoma for instance, is often difficult. Careful study is required and often a repeat examination is necessary the following day to obtain desired information.

Carman states that nine out of ten gastric ulcers give definite roentgenologic findings.

It is a well known fact that gall-bladder disease, appendicitis, some gynecological diseases, and pathology in other abdominal organs may produce reflex manifestations in the stomach which resemble ulcer.

I believe the classification of ulcer should be a simple one such as the following:

1. Mucous ulcer.
2. Indurated ulcer.
3. Penetrating ulcer.
4. Perforating ulcer.

The mucous ulcer may be only a slight erosion or slit in the mucosa and is, therefore, often difficult to diagnose and may be overlooked. They do not always produce definite x-ray evidence of their location. This is partly on account of the crater being too shallow to retain barium.

The indurated ulcer produces a thickening and rigidity of the stomach wall which is without peristalsis and is, therefore, more easily detected. Unless situated directly on the anterior or posterior wall, which is unusual, it should be located.

The penetrating ulcer is seen as an excavation in the gastric wall which fills with barium and presents itself as a characteristic niche deformity. It may vary greatly in size from a small fleck to a niche several centimeters in diameter. Many times it is accompanied by an incisura or indrawing of the greater curvature opposite the lesion. This ulcer is also frequently responsible for the hour-glass type of stomach.

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The perforating ulcer as its name implies, has caused a local destruction through the entire gastric wall. It is often accompanied by an accessory pocket outside of the stomach. This pocket contains barium showing a fluid level with a small gas bubble above it. Sometimes the fistulous tract leading to it is plainly outlined. Perforating ulcer may be accompanied by a mass of adhesions distorting the stomach outline and making it difficult of diagnosis from carcinoma.

In addition to the signs of ulcer such as niche, hour glass stomach and accessory pocket which I have briefly described, there are several lesser signs which aid in clinching the diagnosis. Among these should be mentioned incisura six hour residue; alterations in peristalsis, lessened mobility, localized tenderness, dilated stomach, and prognathic stomach. Each of these contributes its bit toward establishing a definite roentgen picture of gastric ulcer.

An incisura is rarely if ever seen on the lesser curvature. It is found as an indrawing or indentation of the greater curvature and points toward the ulcer. An explanation of its cause may be found in the fact that ulcer undoubtedly sets up an irritation, causing a contraction of the circular muscle fibers of the stomach. It may be due to spasm, secondary to other pathology within the abdomen. To be of diagnostic value it must withstand palpation and not relax after giving belladonna to physiologic effect.

During the fluoroscopic examination any tenderness to pressure in the region of a suspected ulcer should be noted. Careful observation of the shape, size, position, peristalsis, mobility, and motility should be made. A six hour examination for residue is important as it has a diagnostic valve. The stomach should be viewed from different angles by shifting the patient so as to get oblique and lateral observations as well as the usual anterior-posterior position.

Ulcer may occur anywhere on the gastric wall but by far the greater per cent occur on or near the lesser curvature. One cannot state from the x-ray examination that an ulcer is not malignant, as many of them are found upon microscopic examination to contain carcinoma cells. It is easy to comprehend that in these cases where only a small amount of carcinomatous tissue is present that no definite roentgen indications to malignancy are obtainable. It is also true that the physical and laboratory methods will be inadequate to establish a diagnosis before the ulcer is excised. We do know however that when the ulcer niche is larger than two centimeters in diameter it is malignant in the majority of cases. This information is of great value to the patient as an early diagnosis of carcinomatous ulcer is essential to his welfare. The treatment of such a case should be surgical.

A great controversy has taken place, with many heated discussions, as to whether the treatment of gastric ulcer should be medical or surgical. My viewpoint in the matter is that all penetrating ulcers should have surgical treatment, first on account of the likelihood of perforation and second on account of the frequency with which they become malignant.

I think both the surgeon and internist agree that practically all perforating ulcers should have surgery. The two remaining types, mucous and indurated, should have primary medical treatment as many of them will heal under proper care and diet. Those that do not make a permanent recovery after thorough treatment, should be referred to a competent surgeon.

I will summarize briefly the outstanding diagnostic points in gastric ulcer.

1. A definite niche practically always means ulcer.

2. Ulcer adds to the total outline of the stomach.

3. An accessory pocket is pathognomic perforated ulcer.

4. Hour glass stomach is often due to ulcer.

5. The majority of gastric ulcers occur on or near the lesser curvature.

6. A dilated, prognathic stomach is generally due to pyloric ulcer, causing stenosis.

7. A definite incisura which cannot be relaxed by belladonna given to physiological effect is highly indicative of ulcer.

8. Carcinoma may originate in the base or border of any gastric ulcer.

9. A gastric ulcer having a diameter greater than two centimeters is more often carcinomatous than not.

Joshaway Crabapple says:

"Notwithstanding the life of a paper dollar is only seven or eight months, we have never had one die on our hands."

MEDICAL TREATMENT OF ULCER OF STOMACH*

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There is perhaps no field of medicine that has been the subject of more controversy of recent years than has that of the treatment of gastric ulcer. This controversy has been waged between internist and surgeon with an acrimony that has engended a disrespect for the others' endeavors. The writer has been present at such meetings when the best informed men of the country have claimed for their particular specialty the sole right to treat such cases. The outcome of such a controversy has ended, as they usually do, in compromise and the internist and surgeon alike can see that each has a valid claim for his contentions.

There is still much which the profession would like to know concerning gastric ulcer but in the light of what we can reliably depend upon concerning this condition the important consideration is what cases shall be treated medically and which surgically, or by both.

I am sure that all will agree that perforating gastric ulcers, gastric adhesions, gastric ulcers with pyloric stenosis, and secondary obstruction are surgical from the time the diagnosis is made. Gastric ulcers in their incipiency and early months are medical cases. A chronic ulcer is a medical case until it fails to respond to such treatment, when surgery becomes an adjunct, the case always remaining in internist's hands. I may add that the thorough medical treatment of an ulcer case requires that the patient possess a fair measure of intelligence and self-denial and so situated that he can carry out a proper dietary course. I should be very reluctant to undertake medical treatment of an individual who had difficulty in understanding the why and wherefore of the methods employed, and this certainly is essential in order to have the fullest cooperation just as it is in cases of diabetes if managed successfully; and again if the patient must depend on restaurant or boarding house fare or on the housewife whose knowledge of the culinary art is very meagre, to supply a proper diet.

An ulcer that has already a large indurated base as revealed by the x-ray and palpation and especially if occurring in an elderly individual had better not be undertaken as a medical case. It does often happen that a preliminary medical treatment makes the patient feel that he has been given a change before an operation is performed, and he will all the better cooperate in such an undertaking. In addition to the above reason there is the additional one of having the patient the better prepared for such an ordeal.

The cardinal principles of the treatment of gastric ulcer is, first, rest for the individual and for the stomach in particular. Second, to remove those causes which produce or directly interfere with the repair of the ulcer. The first is accomplished by placing the patient in bed and keeping him there during the first few weeks of treatment and rest the stomach by frequent small feedings which require a minimum of gastric activity. The latter requirement is met by diet and alkalizing agents.

In the average case an ulcer patient will be required to remain in bed for three to six weeks. For the ordinary individual this will be a laborious and tiresome task and for this reason should be conducted under the most cheerful circumstances. If in addition to remaining in bed such a patient is burdened with domestic business or financial cares his progress will be retarded. The deleterious action of worry on gastric activity is a long established fact.

The diet is perhaps the most important consideration of ulcer treatment. There have been a number of such devised for this condition but the outstanding three are the Lenhartz, Sippy and Smithies diets. The first two are much alike in kind and principle, while the latter observes a somewhat different theory of treatment and I must confess I am not familiar with it in practice. The Sippy diet seems to be the most systematic and rigid plan yet worked out and has received more well merited attention than any other. Much of the recent literature on this subject has been replete with a diet known as a modified Sippy, each writer having a different modification until the original is almost lost sight of and no doubt accounts for many failures.

It is not my purpose to claim everything desirable for the Sippy diet but its flexibility coupled with its familiarity makes it the one of choice. The fundamental requirements of any diet are that (1) the food should be mechanically non-irritating (2) it should be so chosen and administered as not to increase the HCl content of stomach juice and not to favor hypersecretion and (3) the food given while relatively small in volume should be adequately varied and of sufficient coloric value to maintain a normal state of nutrition.

It would be an affront to the intelligence of this audience to give in detail here the Sippy plan of diet as it may be found in any reliable text book. In brief it may be said that it consists of feedings every hour from 7 a. m. until 7 p. m., of a mixture of equal parts of milk and cream gradually adding soft eggs, well cooked cereals. custards, soups, vegetables, purees and etc. At equal intervals between feedings alkaline powders of calcined magnesia, sodium bicarbinate are given, alternating with calcium carbonate and sodium bicarbonate in quantities sufficient to control the free hydrochloric acid. The latter is determined by test of stomach contents taken just previous to a feeding period and at different times during the day and night. This procedure presupposes that one accept Dr. Sippy's theory that the free HCl retards and breaks down tissue repair. The principle seems to be a sound one and is generally accepted. Each case must be individually studied and treated. The increase in diet is an individual study as it depends on such factors as the decrease of blood in the stool, the cessation of pain and the desirability of increasing the patient's weight. If success is to be attained these individual variations must be watched and appropriate changes made. The daily examination of the stool for the presence of blood and the amount present is a fairly reliable index to the progress of repair and a good criterion as to how rapidly the diet may be increased. Pain ordinarily is absent on the third or fourth day and should remain so and the diet not increased until it does disappear. At about the third week the additional portions of the diet are arranged to come at the three regular meal times and in so doing reestablish the usual customs of the individual. The hourly feedings and alkaline powders are continued but later giving way to lunches and powders for two or three hour periods after each meal. All these changes are made when the doctor considers the patient's condition ready for them and it is just in this connection the doctor displays his ability to treat gastric ulcer for I am sure no fixed regime is suitable to all cases.

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*Read before annual meeting, Nebraska State Medical Association, Omaha, May 11-13, 1926

The drugs used in the treatment of gastric ulcer are legion but with the exception of those used for the alkalinization of the individual there are few that possess real merit. Sodium bicarbonate is perhaps the most useful and most commonly used of the alkalinizing agent. Calcined magnesia and calcium carbonate have respectively four and two and one-half times the neutralizing power of sodium bicarbonate and for this reason especially valuable. Calcined magnesia in too large doses will often become too laxative and must be used accordingly. Bismuth subnitrate is especially useful for its soothing effect to inflamed mucus membrane. Dram doses before the first feeding in the morning are especially recommended. Another drug producing a useful service in ulcer cases is atropine. Ulcers near the pylorus are accompanied by spasm and this distressing condition can be overcome by its use. It will diminish the gastric secretions as well, although the excess will rapidly disappear when the free acid is accurately controlled.

Other drugs have no especial value in the treatment of ulcer except on some of the complications and these I shall not discuss.

I might add that in the use of alkalies there is a tendency to use too small rather than too large quantities and that the danger of alkalosis is not a serious one and is quickly relieved by withdrawing the offending agents.

The matter of focal infection should not be neglected. The work of Rosenow concerning its importance as an etiological factor cannot be disregarded. Every point should be cleared up, especially those about the head. Intra-abdominal foci resident in a diseased gall-bladder or appendix may be a contributing cause. Just when this should be done is a matter of refined judgment for the physician in charge. He will be guided in this matter as to the amount of infection present, what part it seems to play in connection with the ulcer, and the condition of the patient to undergo eradication.

The critical time comes when the patient leaves the hospital and is no longer under the daily supervision of his medical attendant. The temptation to return to his previous habits because he no longer experiences pain may be a difficult one to overcome. The medication and diet should be given in detail to the patient and in writing that he may have no excuse to vary from it. These patients should return every three weeks that the doctor may know what progress is being made but more important to keep the patient interested and faithful in his own treatment. Such a routine should continue for six months or longer if the doctor sees some reason for doing so.

When all these measures have been thoroughly carried out I think the patient has had a well advised medical treatment and if he cannot keep well under such management then I would advise surgical intervention.

The points to be borne in mind in the medical treatment of gastric ulcer are, first that suitable cases be selected, second that each case be studied individually and not forced to follow a stereotyped plan of treatment and thirdly, that they be kept under observation and management for from six months to one year.

SURGICAL TREATMENT OF GASTRIC ULCER*

B. R. McGRATH, M. D.,
Grand Island, Nebraska.

There is so much diversity of opinion on the subject of gastric ulcer that its treatment cannot be considered standardized to any extent.

The late B. W. Sippey(1) recognized as surgical only 15 per cent of the cases of peptic ulcer, and stated that this might be reduced by about one half by long continued medical treatment. His classification of surgical cases included the following: Malignancy, perforation, perigastric abscess, some cases of hour glass stomach, some cases of hemorrhage, perigastric adhesions seriously interfering with motility, focal infections and those cases of pyloric obstruction that do not yield to medical treatment in three weeks.

On the other hand W. J. Mayo(2) states duodenal ulcer is satisfactorily treated by surgery in 95 per cent of the cases and the surgically satisfactory group of gastric ulcers is well above 90 per cent.

Within the surgical branch of the profession, there exists a considerable diversity of opinion on the treatment of gastric ulcer.

Is there a probability that the treatment of gastric ulcer may soon become standard and what may we reasonably expect that treatment to be?

What part of the cases should be medical and what surgical?

What surgical procedure will give relief from symptoms?

Is more demanded than mere relief from symptoms?

How extensive are we justified in making our operation for relief and safety?

In deciding the first, we must admit that there is a medical treatment and that by its use a large percentage of ulcer suffers are relieved of their symptoms, and that some are cured. We must also admit that certain bad results sometimes follow the use of surgical treatment.

A vicious circle may form by way of the gastro-enterostomy and pylorus there may ocassionally be a dumping stomach; gastro-jejunal ulcer may develop, though few will admit that its frequency is anywhere near the 34 per cent found by Lewisohn(3) in the cases treated in Mt. Sinai hospital.

Medical Treatment is not entirely without risks.

Hardt and Rivers(4) have shown that a severe toxemia may develop from the alkaline treatment in a considerable percentage of patients if the alkali is given in large enough quantities to neutralize the acidity.

A false sense of security is given by the relief from pain.

We have seen perforation occur when the patient apparently was well on the way to recovery with medical treatment. Neither method is without some risks.

Lack of permanency of medical cures is the feature that finally decides many ulcer sufferers in favor of surgery.

The length of time symptoms have existed is important in determining which method promises most. This is clearly illustrated by the statistics of Nielsen(5) 95 per cent to 98 per cent of patients given medical treatment are discharged symptom free. Two hundred and nineteen patients were investigated 2½ to 19 years after discharge. Two hundred of these were not permanently cured. Of those who had had symptoms less than six months, 60 per cent were permanently cured and 16.7 per cent were improved. When symptoms had lasted one to three years, 36.9 per cent were cured, after symptoms lasting three to five years 20 per cent were cured and after ten years of symptoms the percentage of cures was 5.3 per cent.

The common statement that no ulcer should be operated until after medical treatment has been given a thorough trial seems very inaccurate. If medical treatment offers only temporary relief in nineteen out of twenty cases of long standing and can make the cure permanent in only one of the nineteen, cases of long standing should be classified at once as surgical.

Uniformly good results are obtained by operation on cases showing pyloric obstruction. Whether the obstruction is from spasm or from scar, these people are usually relieved permanently by a gastro-enterostomy. The x-ray report on retention is of great value in determining the advise to be given a patient on the management of his case. These cases, under medical treatment, have frequent recurring attacks and must undergo repeated periods of treatment and disability.

Of the complications, part may be considered surgical and part medical. Hemorrhage is seldom, in itself, surgical. Bleeding is usually controlled by medical means, but if a vessel is eroded that is too large to be controlled by medical treatment, the patient is seldom in condition for severe surgical intervention when that fact is discovered.

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Perforation and perigastric abscess have already become standardized in their treatment and will require no discussion.

In cancer, it is practically surgery or nothing. No one will dispute the right of the surgeon to take such radical steps as may offer hope of cure.

In the surgical treatment of peptic ulcer no other measure has met the indications so successfully as has gastro-enterostomy. It is an operation of comparatively simple technique. It provides drainage for an organ which had been kept bathed in an excess of an abnormal, irritating secretion. It makes available for neutralization in the stomach, of its irritating secretion, an alkali which, though in close proximity, nature could not use for that purpose. The earlier emptying of acid gastric secretions is said to stimulate earlier secretion of alkaline pancreatic juice and as a result earlier cessation of gastric secretion. These results are brought about without diminishing the area of the secreting surface of the stomach or changing the relative numbers of the various types of glands. The musculature of the stomach is not disturbed.

A considerable advantage of gastro-enterostomy lies in the fact that the operation may be undone if the results prove unsatisfactory.

There is a tendency at the present time to discard gastro-enterostomy as a routine procedure for much more radical and mutilating operations. It must be admitted that some ulcers require additional treatment. Perforating type of ulcers that have bled profusely should not be allowed to remain with their threat of serious after results, but should be removed with knife or cautery by the simplest possible technique. In our own experience simply surrounding ulcers of this kind with a purse string suture has seemed to give satisfactory results.

Thick old scars may destroy stomach function in certain areas beyond conservation, and leave no hope for recovery without excision. The greater danger of cancer in stomach ulcer must be kept in mind.

If further experience demonstrates that after gastro-enterostomy, cancer developes in a high percentage of cases, routine treatment must require excision of all stomach ulcers regardless of location. Ewing(6) has shown that 38 per cent of cancers of the stomach give fairly clear symptoms of ulcer preceding the onset of the cancer. MacCarty's(7) work shows cells of probable cancerous nature in many stomach ulcers at the time of operation. What we need is the frequency of cancer in cases treated for ulcer by conservative methods.

General adoption of radical methods should await such statistics.

Treatment of ulcer requires careful attention to foci of infection. There is sufficient evidence to show that in animals, at least, ulceration of the stomach and duodenum may be produced by organisms put into the blood stream. Careful searching out and elimination of foci furnishing such organisms to the blood stream of the patient should be a part of the standard and routine treatment. In the case of the appendix and gall-bladder their effect on digestive processes should furnish an additional reason for careful examination and removal in suspicious cases.

It should be kept in mind that ulcer patients are not well immediately after operation. Post operative care should not be neglected. One who has suffered from stomach distress for years, made his diet a constant study, and developed a habit of introspection does not change all of these habits of years at once after having a new opening made in the stomach.

The regulation of diet until normal digestion is restored and the ulcer healed, the control of habits so that general health may be brought up to par, the direction of thoughts away from self and along healthful channels will require months of post operative treatment. Also it should be kept in mind that few individuals are always free from digestive disturbances. A stomach operated upon can be only partially restored to normal and the prognosis should be made accordingly.

Summarizing:

1. Cases of long standing and cases with obstruction and certain complicated cases should at once be classed as surgical.
2. Gastro-enterostomy meets the requirements for relief better and more safely than any other procedure.
3. Foci of infection should be carefully removed.
4. Careful medical treatment should continue indefinitely.
5. Prognosis should not promise too much.

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DISCUSSIONS

B. B. DAVIS, M. D., (Omaha): After listening to this wonderfully good symposium, I think we will all conclude that there are no hard-and-fast rules governing the diagnosis of gastric ulcer; neither are there hard-and-fast rules covering the treatment.

I was particularly impressed by the moderation of the last two gentlemen who spoke on the subject of the medical and surgical treatment. It almost seemed to me the millennium had come. There was none of the strong claims frequently made by medical and surgical men in regard to results.

I should like to say just a word or two along this line. It has seemed to me that if it were possible for us to make more exact diagnoses in regard to the condition of the ulcer, it might have a good deal to do governing the treatment. I do not remember ever to have seen any series of results treated medically where they have definitely made this differential diagnosis. It has been my impression the reason the medical men have a large number of cures is the fact a large proportion of these are superficial ulcers — mucous ulcers — which are in large proportion cured by medical treatment. I should like some one to differentiate and take a series of indurated ulcers and see how many of them can be cured by medical means. It is my impression the percentage would be exceedingly small, if any.

So if we can get down to the point of making a differential of the ulcer as between a superficial and a badly indurated, it would cut a big figure in controlling the treatment.

The system of waiting to see is about the only thing we have to go on. I should not think of advising surgical treatment in a comparatively recent ulcer when no medical treatment had been used. It is true medical treatment should be used for a time, but I do believe the time is approaching when we may be able to make the differential diagnosis between the superficial ulcer and the deep, and thus be guided more definitely in the line of treatment to be pursued.

I thank you.

JAMES F. McDONALD, M. D., (Omaha): I have greatly enjoyed this symposium on gastric ulcer. I should like to note one or two other points which I believe have clinical as well as physiological significance. I wish to note first the newly found cause of gastric secretion, discovered by A. C. Ivy, the Chicago physiologist. He has recently shown that mechanical distension of the stomach, as by an air balloon, causes it to pour out freely a gastric juice of high acidity. According to this principle, larger or smaller meals cause proportionate variation in the amount of gastric secretion. It is interesting that this principle has been employed clinically upon an empirical basis for a long time in the various diets, which prescribe small but frequent meals in cases of gastric hyperacidity.

This physiological principle also furnishes a reason why pyloric stenosis, or spasm from any cause with consequent retention, gives rise to gastric hyperacidity. Ivy has also shown that many substances, including the products of gastric digestion, when brought in contact with the intestinal mucosa, cause also a gastric secretion.

Thus in addition to the longer known causes of gastric secretion, as the psychic secretion of Pawlow, and the secretagogues present in the food or its digestive products, Ivy has enlarged greatly our knowledge of the mechanism of gastric secretion by showing the causitive action of the mechanical distention of the stomach in this process, as well as the chemical action of various substances including split products of food upon the same function, when these substances are brought into contact with the intestinal mucosa.

The second point I wish to raise bears upon the physiological basis of the classification employed by Dr. Ballard, in describing stomachs of different shapes. He has described stomachs of various shapes in terms of tone, calling them hypertonic, orthotonic, and hypotonic and atonic. I wish to point out that the shape of the normal stomach is not determined by tonus, but by the shape and size of the abdomen as a whole, which determines the space which the stomach and other viscera are forced to occupy. In a person with a wide chest and broad arched diaphragm, there is room enough for the stomach, so that it may occupy a high position. Some have called this the steerhorn stomach since it is not thrust downward into the curved or "fishhook" shape, which it must take in the narrow chested person, whose diaphragm presents a narrow arch. When the stomach is thus pushed downward in a narrow chested individual it doesn't follow that this type of stomach presents a diminished or subnormal tone. In other words, the shape of the stomach is normally dependent upon the shape and size of the body walls, which bound the abdomen, whereas, the tonus of the stomach is determined by physiological factors which control the activity of the visceral neuromuscular mechanism.

Of course, the shape of the hypotonic and atonic stomachs will be effected by the lack of tone, and will hang down between the points of fixation at the cardiac and pyloric ends, on account of muscular flaccidity.

Perhaps I should note briefly one other point in reference to the action of some of the antacids frequently employed to combat hyperacidity. Some of these substances act not only chemically upon the hydrochloric acid present, but effect also the neuromuscular apparatus by a different principle.

Thus the nervous regulation of the stomach, like that of many other viscera, is mediated by nerve fibres coming from two different sources. The nerve fibres which activate the gastric glandular and muscular tissues come to it by way of the vagus nerve (parasympathetic). The nerve fibres which inhibit the same tissues reach the stomach in the sympathetic nerves. Substances which activate or depress either of these two systems of nerve fibres have a resultant effect upon the gastric function. The well known depressant action of atropine results from a blockage of the activating gastric impulses carried in the vagus. While substances like pilocarpin or chloine activate the gastric secretion and motion by stimulating the vagal fibres.

It has been shown that many substances which modify the ionic balance of the fluids, bathing the cells of the viceral tissue effect profoundly visceral function. Calcium is given as an antacid to combat gastric hyperacidity. It combats it in two ways. It neutralizes the hydrochloric chemically. It also has an action which corresponds to that resulting from sympathetic stimulation, i. e., it inhibits pypermotility and hypersecretion by stimulating the inhibiting mechanism. The ionic action of calcium in combatting gastric hyperfunction is generally overlooked.

Potassium has an opposite effect upon the viscera to that of calcium. Its ions seem to act by sensitizing the parasympathetic nervous system. Other ions are being discovered to inhibit or depress the action of the various viscera. The investigation of this field by various workers in different parts of the world is gradually bringing useful light to bear upon this highly important subject.

HOMER DAVIS, M. D., (Genoa): From the standpoint of the general practitioner and internist, I am a little surprised at the modest outlook the surgeon has just placed before us in regard to his line.

My experience — and I should like to say this particularly for the young physician — has been disastrous in late cases of so-called gastric ulcer. If I had formed the opinion in my early career which I now hold, it would be just as soon as gastric ulcer is thorough diagnosed and the things which might have caused it removed, my advice to the young practitioner, to the internist and the one doing general practice, would be to refer your case as quickly as possible to the surgeon. I tell you if it were a personal affair in my family or myself, I should want my medical adviser to advise me the same way.

I have seen in my career no less than half a dozen cases that have been dallied along with medical treatment in gastric ulcer until they got beyond the point where surgical interference would do any good, and those lives have been lost because of delay.

J. E. SUMMERS, M. D., (Omaha): I was so interested in this symposium I quite forgot my clinic this morning, and was called outside and had to make arrangements for one of my assistants to take care of it for me. It has certainly been very interesting and instructive.

I should like to take issue with my friend, Dr. Thompson, on the advisability of an x-ray examination in a clearly obvious pyloric obstruction. To put bismuth in a stomach of this kind lessens the patient's chance for successful operation; lengthens the time in which dehydration is going on, and is a mistake.

I had two illustrations yesterday, one Monday, and one several days before. The presence of bismuth in the stomach made the surgical procedure an exceedingly difficult and bad one. Bismuth is a dangerous thing to have in the stomach when we are trying to do plastic work on the stomach or intestines. Dehydration rapidly occurs. The water is not absorbed from the stomach — very little of it. If the pylorus is destroyed, dehydration is rapid, and it is a dangerous condition, particularly if you have surgical work to do.

I want to speak about the idea of making a diagnosis of a perforating ulcer with the x-ray. Anybody who cannot make a diagnosis of a perforating ulcer without the x-ray had better treat skin diseases!

I should like to say in Nebraska — I do not know what is the matter — but it is the rarest thing for the surgeon ever to have an opportunity to operate upon a case of carcinoma of the stomach at an opportune time. There is something wrong with the medical men. Either he does not make his diagnosis early enough, or holds the case too long. I think it is the latter. That is my experience with most of my colleagues here.

J. E. MEYER, M. D., (Columbus): Two surgeons stated exophthalmic goiter was a surgical condition, and dismissed it. I cannot believe all medical men think that. The same way with ulcer.

I notice some of the essayists evidently treated peptic ulcer as ulcer of the stomach. Others discussed both ulcers of the stomach and duodenum. Of course, a gastric ulcer at the cancer stage should be surgical, not taking a chance on whether it may be an ulcer or a malignant change; but an uncomplicated duodenal ulcer many of us still believe is a medical condition.

Of course, one of the complications usually given is pyloric stenosis, which is often due to spasm. With proper rest, the stenosis is gone. The surgeons always hold out the great dangers, especially that a man will take an alkalosis, which must be comparatively a rare condition.

There is no operation more satisfactory than gastroenterostomy, which in a certain percentage of cases, which is small, results not in benefit. I think we must consider uncomplicated duodenal ulcer as primarily a medical condition.

CLYDE ROEDER, M. D., (Omaha): I wish to emphasize there is a difference between duodenal and gastric ulcer. In the first you have a normal stomach; in the second, an abnormal. That is why a gastroenterostomy works better. In gastric ulcer you need radical surgery. You must consider if you once get a chronic ulcer, there is no cure for it unless you cut it out. We have a change of structure as well as of function.

Whether your patient comes to the medical man first or last, he is a medical case. Surgery is that which changes physiology, which requires the adaptation of the patient. If he cannot adopt himself, the medical man should help him.

Given a chronic ulcer, refer the duodenal ulcer early, because the average surgeon can do the gastroenterostomy and give relief. Hold on to your gastric ulcers. Don't worry about carcinoma. Gastric ulcers are rare. Hold onto it longer than the duodenal, because it requires more radical surgery; there are a fewer number of surgeons who can cure by operation; and generally, if the results are not perfect, the results from surgery are worse than the original disease.

W. L. ROSS, Sr., M. D., (Omaha): May I ask for information concerning the tonus of the stomach? It is my understanding the function of the trap is to hold the food long enough to neutralize the acid. In case of hypo-acidity, it is hard to catch a definite outline with the x-ray. In case of hyper-acidity, you have no difficulty, practically, in getting a good outline with the x-ray film. If the doctor will let us know if that is the function or not of the trap — to receive the food and hold it until this acid is neutralized. It would affect the emptying time of the stomach.

GEORGE W. COVEY, M. D., (Lincoln): There is one question I should like to have answered for me here. I should ilke to have some surgeon compare for me the primary mortality of resection of the stomach and the mortality of secondary carcinoma.

DR. CLYDE ROEDER: That depends upon the surgeon.

E. WILLARD POWELL, M. D., (Omaha): I am sorry I have not more than three minutes for discussion because I do not believe anyone can do justice to this subject in the time allotted. You will note from the discussion that has gone on before me by medical and surgical men, the medical man cites this and the surgical man cites that, both "passing the buck". If the story I heard Dr. Moynihan tell in 1914 in London is true, that 90% of all the gastric ulcers and duodenal ulcers are located in the right iliac fossae, then you have only 10% of your described symptoms that are true gastric or duodenal ulcers. When you really honestly and truly find a gastric ulcer or duodenal ulcer and have proven your diagnosis by history, physical findings, x-ray and laboratory, I think medical treatment is like the story told by a doctor who treated tonsillitis by the x-ray. He treated him and he cured him every year for five years, but he was finally operated on and then he got well. I do not think there is any sense or safety in medical treatment. If you have a definite defined ulcer and the diagnosis is clean cut, why dally with something disastrous? It is purely a surgical thing in either a stomach or duodenal ulcer, and after he has been operated on, watch and guide the patient.

This is one of the great faults of the surgical treatment, of not having the patient report back from time to time. I have never heard of a well trained medical man treating duodenal or stomach ulcers that after he felt that the ulcer was healed, he did not have the patient report to his office for years for check-up. Therefore, I feel that in surgical treatment of all ulcers this is good practice, and in medical treatment a contasnt watch and check-up is essential.

Nearly all of these patients are subjects of bad living, and now bad booze has not helped them and all need much of your instructions and advice on how to live.

I like to cooperate with the medical men but in this subject of gastric and duodenal ulcers, if diagnosis is clean cut, the safest and best treatment is surgical.

W. J. ARRASMITH, M. D., (Grand Island): I am "on the fence" as regards the treatment of gastric ulcer. I have seen quite a number of cases. I recall two rather acute conditions cured medically. On the other hand, I am a firm believer most chronic gastric ulcers cannot be cured by other means than surgery. I do not believe anybody has touched upon the surgical treatment, particularly. Of course, it is a broad subject.

I think a great deal depends upon the preoperative diagnosis whether or not we should limit our operations to one standard operation. In other words, if you have obstruction, of course, a gastroenterostomy is the operation of choice. If we do not have obstruction and have a marked hyperacidity, we must provide drainage for this acidity. On the other hand, we find lots of peptic ulcers with hypo-acidity, which does not respond well to gastroenterostomy. A gastro-jejunal ulcer is a severe complication of peptic ulcer.

A surgeon should not limit his operation to one, but study his case preoperatively and when the abdomen is open. Most cases of gastric ulcer require resection of the ulcer with gastroenterostomy.

The Doctor brings up a question about the mortality. I agree with Dr. Roeder that it depends upon the surgeon. Personally, we have had a few resections. I have had three for gastric ulcer due to multiple ulcer in the pylorus, with no mortality. Gastroenterostomy carries a certain mortality. We agree gastric resection carries a high mortality, also. I believe gastric resection, with multiple ulcers, offers a very good outlook; and I would choose it in preference to a gastroenterostomy in certain types of cases. Each has its place.

I thank you.

DR. THOMPSON, (closing): In answer to Dr. Summers' question, I am advocating routine procedure simply because gastric ulcers are so frequently wrongly diagnosed. I think in the hands of the average diagnostician they are frequently missed. Whether we take up perforating gastric ulcer or not does not make any material difference. If we have diagnosed the condition, that is important.

DR. CARL BALLARD, (closing): I think Dr. Summers is only partly right on perforated ulcers. He is all right on acute perforations, but some ulcers do not give a whole lot of definite symptoms. They perforate slowly and are walled off by adhesions. I do not think he is going to be able to diagnose all of those.

The x-ray man rarely, if ever, sees an acute perforation. They are all old, chronic stuff that has gone along for some time, and have an accessory pocket.

DR. SUMMERS: I did not refer to acute perforations.

DR. BALLARD, (continuing): I think the x-ray may be of some value in determining whether an ulcer is operable or not. I think the treatment of all penetrating ulcers of any size, if the base is two centimeters broad, should be surgical: First, on account of the liability of perforation; and second, on account of the liability of carcinoma developing in this crater.

I should not feel comfortable going around with a penetrating ulcer, with only the serous coat of the stomach between that ulcer and perforation. I would think any severe muscular exertion might possibly bring on a perforation. Of course, in all perforated ulcers, the treatment is purely surgical.

DR. A. C. BARRY, (closing): During recent years it has been my privilege to attend many medical meetings and the subject of Gastric Ulcer is always discussed, with about the same outcome. Men who do much special work along this line make statements at one time that it is necessary to change later, and this will be so as long as there are unsettled points concerning Gastric Ulcer.

The medical man is in an unfavorable position because he cannot furnish proof as readily as can the surgeon. By the time the ulcer is demonstrable by x-ray or palpation, a large amount of fibrous tissue is present and I agree with Dr. Davis that it is rather unlikely that this tissue is removed by medical treatment. There is, however, a time when these ulcers are small and slight mucus membrane erosions and not demonstrable by x-ray. The only evidence is clinical and no doubt many such are treated medically with good results.

It is surprising how many cases will go years — fifteen or twenty — with seasonal attacks. Once they have been through a treatment some will often repeat it themselves and the doctor never see them again. This is, of course, poor treatment in many cases, for two or three times every year we are called upon to do an emergency operation for perforation.

DR. B. R. McGRATH, (closing): I am greatly impressed with the radicalism of the medical men, and the conservatism of the surgeons, which is the opposite of what usually occurs. The medical men today have apparently been much in favor of surgery in all gastric ulcers.

I think there are some ulcers that heal under medical treatment. What I tried to bring out is the fact ulcers of long standing are always surgical, and the point Dr. Covey brought up it is not advisable to do an operation that may produce a death rate of 5 per cent in order to avoid a possible complication of malignancy that may occur in one-half of one per cent.

The idea of the paper was to do the thing that will give relief of symptoms, and the thing that can be done without too great risk to the patient to produce his safety. In a considerable percentage of cases, the ulcer may be resected without great danger; but in a great many cases it cannot be resected without making the operation very extensive and dangerous. I wished to bring out the thing that gives relief to the symptoms is the principle of the gastroenterostomy. It is not always applicable, that is true; but other things are not without complication and failure. Then we may go as far as we can, but with the safety of the patient always in mind.

CHEESE TID-BIT URTICARIA

M. N. Frank, Detroit (Journal A. M. A., May 9, 1925), has seen three cases of urticaria due without doubt to cheese tid-bit (a National Biscuit Company product). In all these cases, without varying an iota, the symptoms were alike. The onset was within eighteen hours after ingestion of the cheese tid-bit. Hearache was the first symptom, followed by a slight nauseat and then a gradual itching of the skin of the face. Within from five to ten minutes, the eyes were almost closed. The face became so edematous that the persons were beyond recognition. Then the neck swelled, and the upper extremities, chest, abdomen and lower extremities followed in the order mentioned. The wheals began as an erythema, which soon, while under direct observation, coalesced and became edematous simultaneously. After the entire body was edematous, the patient assumed a nervous attitude, as a result not alone of the intense itching, but also of the oncoming vomiting. After vomiting, the itching was relieved partially. The patient felt slightly better. All three patients complained of a thickening sensation of the togue. The mucous membrane of the entire oral cavity was highly congested.

MODERN ASPECTS OF NUTRITION: THE PATHOLOGY OF MALNUTRITION.

15. The Ketogenic Diet in the Treatment of Epilepsy.

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INTRODUCTION

We have in the last two articles occupied ourselves with an evaluation of anti-ketogenic diets in the treatment of diabetes. We shall now devote ourselves to the ketogenic diet with special reference to its use in the treatment of epilepsy. Although clinical medicine has made remarkable progress in the last few years, not much light has yet been shed upon the cause or treatment of various nervous disorders, of which epilepsy is a notable example. In view of the fact that the number of epileptics in this country is estimated at closely half a million, the disease assumes the position of an important public health problem. Consequently any advances in the treatment of this disease should be hailed with interest and enthusiasm.

The recent trend of therapy for epilepsy has been along the lines calling for elimination of foci of infection, for the use of endocrine products, for general hygenic measures, and for dietary control. All past attempts at diets for epileptics have embodied merely vague ideas of non-irritating foods, of milk diets, or of the exclusion of meat. Accurate attempts to determine the possible specific influence of protein, carbohydrate, and fat upon the course of epilepsy are entirely a new undertaking.

FASTING AS A METHOD OF TREATMENT IN EPILEPSY

The first specific dietary measure in epilepsy was proposed by Guelpa(1), who advised fasting for the routine treatment of this disease. Favorable reports on this mode of treatment have come from Gyelin(2), and also from Conklin(3). More recently Weeks and Renner of the State Village for Epileptics at Skillman, New Jersey, and Allen and Wishart(4) of the Physiatric Institute at Morristown, New Jersey, have checked up the treatment by fasting. They tried out, for a period of three weeks, the therapeutic effects of fasting upon patients having various stages and degrees of epilepsy. They noted that epileptic seizures ceased during the fast in only 30 out of 64 instances. In general, however, their observations confirmed those of previous writers that the attacks decreased more or less during fasting. The New Jersey investigators interpreted the favorable findings as an accidental phenomenon, such as can be easily induced in epileptics by variety of influences, among them being psychic influences. They do not consider the treatment to possess genuine therapeutic benefit. Assuming that one or more forms of food should be injurious to epileptics in view of the alleged benefits of fasting, diets of non-nutritive bulk, of high caloric value, of high protein, high carbohydrate, or high fat content they found neither harmful nor helpful.

The failure of Weeks, Renner, Allen and Wishart to report favorably upon fasting as a treatment for epilepsy may be due to the fact that they failed to select their cases. It is very likely that not all types of epilepsy are amenable exclusively to dietary treatment. The somewhat favorable results that have been obtained in fasting have been attributed by some to the production of acidosis. We shall, however, soon see that the type of acidosis induced in the treatment of epilepsy is of paramount importance. In contrast to the negative findings of the New Jersey workers stand out clearly the valuable results of Peterman(5), working at the Mayo Clinic, with diets productive of the ketonic type of acidosis, generally spoken of as ketosis.

THE STATE OF METABOLISM IN EPILEPSY

The type of epilepsy Peterman investigated is known as essential or idiopathic epilepsy, a chronic condition of the nervous system characterized by periodic recurring convulsions, lapses or abnormal mental states, occurring in individuals with a constitutional inferiority or personality defect, but with no demonstratable pathological lesions. The immediate cause of the epileptic attack may be looked upon as induced by some disorder in the metabolic process. The metabolism of the epileptic child is probably normal between attacks. Changes in the metabolism resulting in the seizures have not been sufficiently investigated to warrant definite conclusions. There seems to be a decrease in the hydrogen ion concentration of the blood, that is, there seems to be a tendency towards alkalosis just preceding the convulsions and a tendency towards acidosis immediately following or late during the attack. Changes in blood calcium have been reported by Bigwood(6) and others. It is a well known fact that lowering of the concentration of the calcium ions of the blood induces neuro-muscular instability, as in the case of tetany.

THE NARCOTIC EFFECTS OF THE KETONE BODIES IN RELATION TO TREATMENT OF EPILEPSY

We have stated that the favorable influence of ketogenic diets in epilepsy, like the favorable effect of fasting, has been attributed by investigators to the acidosis produced. The acidosis *per se* does not wholly explain the therapeutic effect, and we venture to offer a more plausible explanation. It is a well known fact that a narcotic, such as chloral, chloroform or ether, will often suppress epileptic attacks for a considerable period. Acetone, diacetic acid, and beta-hydroxybutyric are also narcotics. Kussmaul(7) in 1874 showed that acetone injected subcutaneously into rabbits had an anaesthetic effect. Archangelsky(8) in 1901 determined the blood acetone concentration while subjecting animals to air containing acetone. Narcosis was apparent when the blood showed 0.32 per cent to 0.83 per cent of acetone. Harpuder and Erbsen(9) in 1925 demonstrated that beta-hydroxybutyric acid inhibits cell respiration and also the activity of a number of enzymes. The action of beta-hydroxybutyric acid is, therefore, similar to that of a narcotic poison. This action is independent of its acid nature. Diacetic acid is also believed to have narcotic properties.

It may be added in this connection that sodium bicarbonate is not efficient in the treatment of diabetic coma, for the sodium salts of diacetic acid and of beta-hydroxybutyric acid are just as narcotic as the acids themselves. It is only when these organic acids are removed that the patient comes out of the stage of coma. Insulin is specific in diabetic coma for it helps to remove altogether by the process of oxidation, the characteristic compounds present in the blood of a patient in diabetic coma, which are responsible in a large measure for the coma induced by a state of ketosis.

The pharmacological properties of the ketone bodies render them valuable in the treatment of epilepsy. Instead of using chloral, chloroform or ether over small periods of time, acetone, diacetic acid, and beta-hydroxybutyric acid can be introduced in the body over long periods of time through a state of ketosis developed as a result of starvation, or much more preferably, as the result of a dietary regime in which the fat is made to exceed the carbohydrate intake to such an extent that ketone bodies appear in the blood and urine.

THE CLASSICAL EXPERIMENTS OF PETERMAN

Wilder(10), at the Mayo clinic, was the first one to observe the beneficial effects of ketonemia on the course of epilepsy. The attempt, however, to apply ketogenic diets in the treatment of epilepsy, and to popularize them, we owe to M. G. Peterman, of Milwaukee. While at the Mayo Clinic he investigated for a period of 2½ years the effect of ketogenic diets on 37 patients, out of whom 20 were boys and 17 were girls. Their ages ranged from 2¼ to 14¼, with a medium age of 8 6/10 years. Not one showed evidence of organic disease of the central nervous system, and the Wassermann was negative for each one of them. Seven had attacks of grand mal, seventeen of petit mal, and thirteen of both grand and petit mal.

Of the thirty-seven patients treated, nineteen remained free from attacks of convulsions. Eight out of the nineteen were free from attacks from one and one-half years. The remaining eleven, were free from three months to one year. Thirteen patients showed considerable improvement. The number and severity of attacks were decidedly diminished. Three patients were free from convulsions from three to eight months, but were not heard from after that time. One patient made no improvement at all, and another patient was not free from convulsions until a very long time after commencement of the treatment. Several patients, free from convulsions from one to eight months, developed attacks again as the result of indiscretions in diet usually brought about by indulgence in carbohydrate. Resumption of the prescribed ketogenic diet, however, together with purging immediately controlled the convulsions.

It is interesting to add that all of the 37 patients developed normally during the progress of the investigation. Ten of these examined at the clinic from six to twelve months after the beginning of their diet had made normal physical development. The children on the ketogenic diet showed marked improvement in character. They were less irritable, were more alert, and took an increased interest in life. They slept better and were more easily disciplined. Five of the patients went through severe infections, including scarlet fever, pertussis, and acute respiratory diseases with normal convalescence. The ketogenic diets were maintained throughout the period of illness. Three patients put on normal diets after ketogenic treatments lasting nine to twelve months continued to remain free from convulsions.

THE KETOGENIC DIET

Ketosis is a state in which acetone and diacetic acid are found in the blood and in the urine. This condition is produced in the event of incomplete combustion of fat. According to the prevalent idea of the anti-ketogenic ratio, we may state that as long as there is available in the diet one gram of carbohydrate for every four grams of fat, the latter will be completely oxidized to carbon dioxide and water. Should the ratio of four to one be overstepped, let us say one gram of carbohydrate is ingested with every five grams of fat, the latter is incompletely oxidized, and beta-hydroxybutyric acid and the ketone bodies, diacetic acid and acetone, will make their appearance in the blood and in the urine. The ketone-producing or ketogenic diet is one very rich in fat and correspondingly poor in carbohydrate.

A long time ago we laid down the postulate that sudden changes in diet are not well borne. In introducing the ketogenic diet we must not forget that sudden changes from the normal or high carbohydrate diet on which the patient has been living to a low carbohydrate and high fat diet often results in nausea and even in vomiting. For this reason it is advisable to reduce the carbohydrate intake gradually. The procedure adopted is to place the patient on a diet containing 75 grams of carbohydrate the first day, 50 grams the second day, 30 grams the third day, and 20 grams the fourth day. On the fourth day this number of grams of carbohydrate corresponds to that required in the dietary prescription. Sometimes nausea develops on the third day. In this event small quantities of orange juice are given, and the carbohydrate is not further reduced unless the nausea has disappeared. Whenever nausea and vomiting occur during the course of ketogenic treatment, a less restricted diet is given for two or three days until the gastro-intestinal disturbance is overcome.

CALCULATION OF THE DIET

Since the total calories required by children vary considerably, it is well to start arbitrarily with a minimal requirement of 50 calories per kilogram of body weight, and later to increase the diet to 60 or 75 calories per kilogram in order to assure gain in weight.

The weight in kilograms is obtained by dividing the weight in pounds by 2.2. One kilogram is equivalent to 2.2 pounds. Given a child weighing 77 pounds, we may compute the weight in kilograms by dividing by 2.2. The answer is 35 kilograms. At the rate of 50 calories per kilogram the total caloric requirements of the child can be found by multiplying 35 by 50. The answer is 1750 calories.

The protein intake is next calculated. The requirement for children has been laid down as one gram per kilogram of body weight. Since we are dealing with a child weighing 35 kilograms, its protein requirement is satisfied by allowing 35 grams of protein in the diet.

One gram of protein yields approximately four calories. The thirty-five grams of protein yield, therefore, 35 times 4 calories or 140 calories.

The total calories for this particular child has been put down as 1750 calories. Since 140 calories will come from protein the remaining calories, or 1610 calories, must be furnished by carbohydrate and fat.

The danger of nausea and vomiting makes it imperative for the child to start out with 75 grams of carbohydrate the first day. One gram of carbohydrate yields approximately four calories. At this rate 75 grams of carbohydrate furnish 300 calories.

We have mentioned above that the total calories of the patient are to be 1750 calories and that 140 calories are to come from protein, leaving 1610 calories to be supplied by carbohydrate and fat. We have just figured out the calories represented by the carbohydrate in the diet, which is 300 calories. If we subtract 300 from 1610, the remainder, or 1310, represents the number of calories to be obtained from fat.

We are now interested in estimating the quantity of fat needed to furnish 1310 calories. One gram of fat yields approximately 9 calories. If we divide 1310 by 9 we get in round numbers, 145, which represents the number of grams of fat that should be used in making up the diet of the first day.

Summing up, the diet of the first day will be as follows:

Carbohydrate	75 grams
Protein	35 grams
Fat	145 grams

DIET FOR THE SECOND DAY

The diet on the second day is changed to give a carbohydrate content of 50 grams. Since the 75 grams of carbohydrate of the first day are reduced to 50 grams, there is sustained a loss of 25 grams, which is equivalent to a loss of 100 calories. This loss in calories is made good by adding 11 grams of fat, which yield 99 calories. The diet for the second day will contain 25 grams less carbohydrate and 11 grams more fat than the diet for the first day. The dietary prescription for the second day will therefore be:

Carbohydrate	50 grams
Protein	35 grams
Fat	156 grams

DIET FOR THE THIRD DAY

For the third day the carbohydrate is reduced from 50 grams for the second day to 30 grams. This reduction means a loss of 20 grams or 80 calories and necessitates the addition of 9 grams of fat yielding 81 calories. The diet for the third day, therefore, contains 20 grams of carbohydrate less and 9 grams of fat more than that contained in the diet of the second day. The dietary prescription for the third day is as follows:

Carbohydrate	30 grams
Protein	35 grams
Fat	165 grams

DIET FOR THE FOURTH DAY

On the fourth day we start the ketogenic diet. The carbohydrate is cut down by 10 grams, or 40 calories. The replacement is made by 4 grams of fat, representing 36 calories. The diet for the fourth days is as follows:

Carbohydrate	20 grams
Protein	35 grams
Fat	169 grams

According to Ladd and Palmer, the ketogenic-antiketogenic ratio, or the fat-glucose ratio, may be calculated from the following equation:

$$\frac{F}{G}=\frac{\text{Grams of Fat}}{(0.58 \times \text{gms. of protein}) + \text{gms. of carbohydrate}}$$

Substituting in the equation the values obtained from the diet of the fourth day, we obtain the following:

$$\frac{F}{G}=\frac{169}{20.3+20}=4.2$$

The ratio of fat to glucose in this diet is 4.2 to 1. This ratio exceeds somewhat the one required to prevent the formation of ketone bodies from fat, and we, therefore, expect to find positive tests in the urine for acetone and diacetic acid.

PROCEDURE FOR THE FIFTH DAY

On the fifth day, which is really the second day of the ketogenic diet, we test the urine for acetone and diacetic acid. If the test proves negative we have not arrived at a condition of ketosis. We are now compelled to reduce the amount of carbohydrate by five grams or 20 calories, and to add a quantity of fat (2.5 grams) to keep the total calories the same.

After two days we again test the urine for acetone and diacetic acid, and if the tests are still negative we take off yet another 5 grams of carbohydrate and make a replacement with 2.5 grams of fat. The object of the ketogenic diet is to arrive at a diet low enough in carbohydrate to produce ketosis.

THE EFFECT OF THE KETOGENIC DIET ON THE COURSE OF EPILEPSY

On the ketogenic diet there takes place usually a rapid reduction in the number of epileptiform seizures and marked improvement in the child's mental condition and general demeanor. The diet is continued for a period of five to six months after the seizures are entirely overcome. It is advisable to increase the carbohydrate by 5 grams at monthly intervals, and to increase the protein by 5 grams each third month. The fat is reduced in proportion, if the child is gaining in weight.

DIETETIC TREATMENT IN REFRACTORY CASES

In refractory cases, when the convulsions refuse to subside in spite of a ketosis of a duration of even four to six weeks, good results may be obtained by instituting a period of starvation lasting from 7 to 10 days, during which the juice of two oranges is given daily together with one to two quarts of water. After this period of starvation the dietary prescription is gradually resumed.

INCREASING TOTAL CALORIES TO TAKE CARE OF GAINS IN WEIGHT

After having produced ketosis, we take the precaution of weighing the patient twice a week to insure against loss in body weight. If no loss in weight is noticed after several weighings, it is well to increase the number of calories. In making such increase the ratio of ketogenic to antiketogenic factors is not disturbed and the protein content is not increased. The addition in calories is obtained by adding fat and carbohydrates in the proportion of 5 to 1. If, for instance, an extra 100 calories are needed, add 2 grams of carbohydrate (8 calories) and 10 grams of fat (90 calories). This would modify the ketogenic diet of our patient, which is C, 20 grams; P, 35 grams; F, 169 grams, so that on the higher energy requirement it would be C, 22 grams; P, 35 grams; F, 179 grams.

TREATMENT OF CONSTIPATION ACCOMPANYING EPILEPSY

In view of the fact that constipation often accompanies epilepsy and predisposes to an attack, good elimination is highly desirable. On the ketogenic diet cathartics should not be necessary, since the high fat diet is in itself somewhat laxative. If the diet does not influence the state of gastro-intestinal stasis, cathartics must be employed. The best results are obtained with sugar-free or diabetic petrolagar and with salts, preferably Carlsbad salts. Cathartics should be employed only to establish regularity of bowel movements. They are not to be used continuously over long periods.

Dr. F. H. Helmholz of the Section of Pediatrics at the Mayo Clinic in a private communication informed the writer some time ago that the demand for information regarding the use of the ketogenic diet in epilepsy has been so great that a pamphlet giving a simple method of arranging diets is being prepared from the Section of Nutrition and the Section of Pediatrics. The pamphlet, entitled "A Manual for Arranging the Ketogenic Diet in Cases of Epilepsy" is now ready, and we believe that it is available to physicians on request to Dr. F. H. Helmholz.

The pamphlet gives a clear and concise explanation of the ketogenic diet. The foods are arranged in tables making the problem of working out the diet extremely simple. These tables should be followed very closely because they have been made out not only with a view of fixing the carbohydrate and fat ratio for the ketogenic diet, but also with a view of supplying the inorganic elements and vitamins without which the very efficient ketogenic diet would prove a detriment rather than a therapeutic benefit.

Considering the fact that the ketogenic diet for epilepsy is a high fat diet, we wish to emphasize as we have already done in the discussion of high fat diets in diabetes, that the fat must be of the very digestible type and rich in fat-associable vitamins. For this reason a large proportion of fat should come from cream, butter, and egg yolk. Part of the fat requirement should be made up with cod liver oil.

In summarizing, we wish to state that a ketogenic dietary regime has proven of great value in epilepsy, especially in the form known as essential or idiopathic epilepsy. Concomittant with the establishment of a state of ketosis or shortly thereafter, there is usually a decrease or complete cessation of epileptic seizures. On the ketogenic diet, which is a diet high in fat and low in carbohydrate, epileptic children gain in weight, and show marked improvement in mental condition and general demeanor.

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BACILLUS SUBTILIS IN PURE CULTURE COMPLICATING MASTOIDITIS AND MENINGITIS*

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C., age 25, came to our office complaining of an uncomfortable feeling in his left ear. His general family history was negative. He had had acute otitis media in each ear when a child and had difficulty at various times since. Both ear drums were completely absent. His right ear had not caused any inconvenience for some months. A few days previously his left ear had started to discharge a small amount of foul smelling, thick, tenacious pus. It had gradually become more uncomfortable but he had suffered no acute pain. He appeared restless, saying he did not feel right. The ear was thoroughly cleaned with an alkaline solution and packed with 2% mercurochrome. He was sent home and told to come in the next day but was next seen five days later when he stated he was no better. The ear was again treated as before. Four days later he returned again stating he felt more uncomfortable; was not hungry; had vomited; felt somewhat dizzy and had much headache. Temperature 99, pulse 100. Fundi examination negative. A tentative diagnosis of acute exacerbation of chronic otitis media with probable meningitis was made. He still refused to go to the hospital.

Two days later he reported again with the same symptoms more marked. His family physician had made a diagnosis of acute gastritis and had prescribed accordingly. A telephone conversation failed to convince the physician of his error; temperature 99.2, pulse 90.

The next day I was asked to call at his home and found his symptoms the same but more pronounced especially the vomiting; temperature 100.2, pulse 110. The family was urged to have more counsel and finally consented the next day when the diagnosis of acute exacerbation of a chronic otitis media with probable meningial complications was agreed upon. He was removed to the hospital.

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*Reported before the Nebraska Academy of Ophthalmology and Otolaryngology at its annual meeting May 10, 1926, at Omaha, Nebraska.

The hospital examination was: Pulse irregular, 64, 70, 72; respiration 18 to 22; temperature 99, 99.6, 99; urine normal; W. B. C. 25,000. Slight inhibition of seventh nerve. X-ray findings reported infected left mastoid, the bone being small with many very small cells. General physical examination negative.

The fourteenth day, under ether anaesthesia the mastoid cells were completely exenterated. A very small amount of pus was found with complete necrosis of the entire bony structure. The inner plate was removed revealing a violently inflammed meinges but only small droplets of serous pus. All pulsations were normal. The wound was packed with 2% mercurochrome solution. His general condition improved, he appeared brighter; free from headaches and vomiting but somewhat restless.

The fifteenth day, temperature 99.8, 99.2, 99.6, 101.2, pulse 74, 60, 88, 80. Patient restless. Smear reports no organisms.

The sixteenth day, temperature 99, pulse 60 regular, patient appears to be improving.

The seventeenth day, temperature 99, pulse 60 regular, dressing changed, wound packed with 2% mercurochrome.

The eighteenth day, temperature 99.4, pulse 72 regular, patient restless, laboratory report from culture taken at operation, pure culture of bacillus subtilis.

The nineteenth day, temperature 98, pulse 64, regular. R. B. C. 3,800,000; W. B. C. 26,000; hemoglobin 80%; 30 C. C. of 1% mercurochrome intravenously, 2% mercurochrome dressing to wound.

The twentieth day, temperature 98, pulse 76 regular, patient complained of much varying pain. R. B. C. 4,450,000; W. B. C. 28,000; hemoglobia 90%; Poly. 84; 2% mercurochrome dressing to wound continuously.

The twenty-first day, temperature 98.6; pulse 72 regular. R. B. C. 4,900,000; W. B. C. 30,000; patient restless.

The twenty-second day, temperature 98, pulse 70 regular, patient delirious. W. B. C. 25,000.

The twenty-third day, temperature 98, pulse 72 regular; patient was taken to operating room where the cranial opening was carried back to explore for abscess formation or sinus infection. The sinus at all times pulsated normally. An incision in the sinus gave a free flow of blood from each end. Some pus was removed from the intracranial cavity for culture. 2% mercurochrome dressing. No intracranial abscess found.

The twenty-fourth day, temperature 98.6; pulse 82, regular; patient comfortable. Smear report, no organisms.

The twenty-fifth day, temperature 98; pulse 80, regular; patient restless.

The twenty-sixth day, temperature 102.8; pulse irregular. 10 C. C. 1% mercurochrome intravenous ½ grain morphine to control pain. R. B. C. 4,700,000; W. B. C. 16,800; hem. 90; poly. 72.

The twenty-seventh day, temperature 100, 102, 99, 100.4; pulse irregular. 10 C. C. 1% mercurochrome intravenous, morphine ¼ grain. Culture report bacillus subtilis with very few staphylococci, blood culture negative. W. B. C. 20,000.

The twenty-eighth day, temperature 100, 99, 101, 100; pulse very irregular, about 60.

The twenty-ninth day, temperature 99, 99.2, 99.6, 99.1; pulse irregular, about 50. R. B. C. 4,200,000; W. B. C. 32,000; hemoglobin 80; poly. 92.

The thirtieth day, temperature 99, 100, 103.2; pulse irregular, about 50. Patient became unconscious and died in an increasing toxemia.

COMMENTS

I consider this case most interesting because of the rarity of the bacillus subtilis in pure culture; the small amount of comments about it in the literature; the comparatively low temperature; the apparent long duration of the disease with a gradual progress toward a fatal ending. The fatal termination apparently being the direct result of cardiac insufficiency.

UNIVERSALIZING BREAST FEEDING IN A COMMUNITY

Frank H. Richardson, Brooklyn (Journal A. M. A., Aug. 29, 1925), states that universalizing breast feeding in a community has become standardized. This procedure consists of three essentials: 1. There must be a group of physicians who are convinced of the overwhelming superiority of breast feeding over bottle feeding; who believe it attainable for the vast majority of infants, and who are familiar with a working technic for making breast feeding possible for the individual child. There must be the cooperation of the birth-recording department or bureau of the community, whether of the city or of the state department of health. There must be an organization controlling sufficient nurses trained in the technic of breast feeding, to visit each newly made mother, as soon as a birth certificate is filed, in order to instruct her in the desirability of keeping her baby on the breast, as well as in the way to accomplish this. These three fundamentals have formed the basis of the Nassau County (N. Y.) breast feeding demonstrations in 1923 and 1924—the first large-scale piece of work along this line. The New York State Department of Health, which was interested in putting this on as a demonstration of what might be done anywhere in the state, supplied in its own machinery the second and third essentials. The Brooklyn Pediatric Society, with which there was the closest cooperation throughout, furnished the first essential; viz, the group of physicians vitally interested in the spread of breast feeding. The demonstration dealt with 2,815 babies. Nine-tenths of the mothers succeeded in nursing their babies for one month, and two thirds of them did so for seven month. The infant mortality rate of the 2,815 babies studied was 49 per thousand. That of Nassau County for 1923, the year of the active campaign, was 64. That of Nassau County for the years 1920, 1921 and 1922, the years preceding the experiment, was, respectively, 70, 67 and 78, with an average of 72. That of Nassau County for the year 1924, when the "hangovers" only were being visited, was 74.

THE VITAL CAPACITY OF THE LUNGS IN PNEUMONIA

A study made by John H. Arnett, Philadelphia (Journal A. M. A., Sept. 26, 1925), of the vital cajacity in thirty-two cases of pneumonia, delayed resolution and empyema, yielded the following data: In pneumonia, the vital capacity is greatly reduced early in the disease. The determination may, therefore, be of distinct diagnostic value in doubtful cases. The greatest reduction generally occurs shortly before the crisis. The advent of the crisis may, therefore, at times be predicted in advance. Cases of uncomplicated pneumonia almost constantly exhibit a rapid rise in th evital capacity in the first five to ten days from the crisis. Patients with empyema and delayed resolution do not exhibit such a rapid rise. The vital capacity may, therefore, assist in diagnosing empyema or unresolved pneumonia. The vital capacity increases gradually for months after clinical recovery from pneumonia or empyema has occurred. In many cases it probably never entirely returns to normal.

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THE SHEPPARD-TOWNER ACT

This Act "for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes", was approved Nov. 23, 1921, and appropriations to carry it into effect until June 30, 1927, were authorized. The Act contemplated the appropriation by states availing themselves of the Act of an amount equal to that appropriated for allocation to the several states. All the states with the exception of Connecticut, Illinois, Kansas, Maine and Massachusetts have availed themselves of the Act.

The matter of appropriation by Congress of an additional sum of money to carry on the work for another two years is before that body.

The plan is essentially the same as the so-called "Good Roads Law" by which the general government fosters highway improvements in the several state.

The American Medical Association by its House of Delegates has consistently opposed the Act "as a type of undesirable legislation which should be discouraged". The principal objection is usually stated to be the tendency toward the socialization of Medicine. Further opposition to an extension of the Act is based on the statement that one looks in vain for facts and figures showing a reduction in maternal and infant mortality through the operation of the Act. "The infant death rate declined 25 points in the three years preceding the enactment of the Sheppard-Towner Act and only 4 points in the three years following its enactment."

The fact that forty-four states are proceeding with a definite program under the Act must be construed in its favor. *The Medical Woman's Journal* is publishing a survey of the work in states functioning under the Sheppard-Towner Act, which tends to uphold the benefits of the Act.

The Nebraska State Medical Association has not taken a position either for or against the Act. It is, therefore, left to individual physicians to take such measures as they may see fit to influence or oppose the proposed extension of the Act.

The Director of Child Hygiene of Nebraska has prepared a statement of the case as it operates in Nebraska and the same is herewith published.

THE MATERNITY AND INFANCY ACT

In the year 1922 the Nebraska Legislature accepted the provisions of the Sheppard-Towner Bill and since then it has been administered through the State Bureau of Health, Division of Child Hygiene.

The Maternity and Infancy Act is for the purpose of promoting the welfare and hygiene of mothers and infants. The education of mothers in better care of themselves during pregnancy, and in better care of the infant and child is one of the chief reasons for the work.

In Nebraska this educational work is done through Child Health Conferences. Mothers and fathers bring their children to these conferences to be weighed, measured and given a thorough physical examination by the local doctors and dentists. A local nurse or a State Child Hygiene Nurse assists at these conferences. It is here that parents may learn how to keep their children well; how to understand physical defects and how and when to have them corrected. The parents are urged to visit their family physician so that he may either correct the defects or advise them what specialist or hospital to visit. Physicians, dentists and nurses may use the conference for education in health; explaining the need of vaccination for smallpox; toxin antitoxin; early dental care and hygiene; the use of cod liver oil and sunshine; orange juice, etc. In many instances a state nurse makes visits in the homes and further urges the parents to seek correction of remedial defects.

When a Conference has not been "followed up" by home calls it is because of the inadequate number of nurses for this work and the huge field that Nebraska presents.

In the spring of 1926 a Federal nurse was loaned to Nebraska and in many towns and counties a "Get Ready for School" Campaign was organized. Parent-Teacher Associations, Woman's Clubs and other organizations cooperated with the Division of Child Hygiene. Fifty-four (54) conferences have been held but complete statistics have not been compiled as yet.

A few classes have been conducted in "Mothercraft" the past year. The lessons consisted of "Prenatal Care"; "Infant and Child Care"; and the preventing of diseases. There were demonstrations of maternal and infant clothing and preparation for labor; bathing the baby, feeding the baby, etc. The mothers are always urged to consult the family doctor frequently during pregnancy, and to have regular urine examination, measurements taken, etc. Also to keep the infant and little child under the physician's supervision, with frequent physical examinations.

Expectant mothers are reached through letters sent to them month by month. In these letters the mothers are strongly advised to be under a physician's care constantly during pregnancy.

Indian Health Work has continued in the Winnebago, Omaha and Santee Agencies. At a recent conference held at Santee, thirty-one (31) Indian children were examined. Trachoma, tuberculosis and other defects were found. The Indian trained nurse is getting many mothers to go to the Agency hospital, as well as other hospitals, for confinement. She also gives splendid teaching in the feeding and caring of infants and children.

This July a special survey is being made in one sand-hill county by a nurse who is visiting homes and learning conditions and needs in the isolated regions where the infant death-rate is high. She is also creating an interest in future child health conferences, and classes in "Mothercraft."

The Division of Child Hygiene sends out many Federal bulletins free on request. Letters of appreciation are received almost daily for the great help mothers have received. Nebraska physicians also send frequently for supplies of these bulletins to give to their patients.

The personnel at present in the Division of Child Hygiene consists of one nurse director, one field nurse, one Indian nurse, one stenographer, and one vital statistics clerk.

For the coming year the Division hopes to assist in establishing "Well Baby Conferences"; meeting monthly in communities where the physicians, dentists and parents appreciate the value of frequent physical examinations of the child. Doctors who are interested in establishing "Well Baby Conferences" may get in touch with the Director of the Division of Child Hygiene who will supply physical examination blanks, literature and a nurse whenever possible.

In the statistics for 1925, forty-nine (49) mothers died of puerperal sepsis; thirty-nine (39) of albuminuria and eighteen (18) of puerperal hemorrhage. There were eight hundred and ninety-six (896) stillborn babies, and one thousand six hundred and sixty-two (1,662) babies who died under one year of age. Until these preventable deaths cease to be there is a crying need for the maternity and infancy work in Nebraska.

— Louise Murphy, Director.

THE NEW YORK PRACTICE ACT OF 1926

An act to amend the public health law of New York, in relation to the practice of medicine, became a law, May 17, 1926, with the approval of Governor Alfed E. Smith.

This act provides for examination and registration of doctors of medicine, osteopaths and physiotherapists who possess certain fundamental qualifications.

A license to practice osteopathy does not permit the holder thereof to administer drugs or perform surgery by the use of instruments.

Physiotherapy is defined in the act as the use of actinotherapy, hydrotherapy, mechanotherapy, thermotherapy, and electrotherapy, exclusive of the use of the x-ray and a license to practice physiotherapy does not permit the holder thereof to administer drugs or to practice medicine, except to treat disease under the supervision of a duly licensed physician.

New license to practice must be obtained at a cost of one dollar the first of every year.

The use of the title "Doctor" in the conduct of any trade or profession involving or pertaining to the health or treatment of disease is prohibited.

A committee on grievances of ten members is to be appointed by the regents from nominees made by the New York State Medical Society, 4, the New York State Homeopathic Medical Society, 2, and the New York State Osteopathic Society, 1, and 3 members are to be chosen by the regents on their own motion. This committee may, on proper complaint and after due hearing, in their discretion, revoke and annul license, annul registration, suspend from practice, reprimand or otherwise discipline members of the profession. Decisions are appealable.

The Department of Health and Department of Education and the governor are prepared to assume full responsibility for the following statements:

"1. This bill if enacted into law will not stop anyone from plying any occupation involving the public health who could legally do so before its enactment into law. That means that it does not restrict the existing rights of any individual or any group.

2. Although no cult is licenesd to practice in this state, it does not stop the practitioner of such cult from practicing the tenets of that cult by any other form of treatment, provided such practice does not involve a violation of the Medical Practice Act or any other section of the Public Health Law as it existed before the enactment of this bill.

The following is what the bill will do:

1. It will require every practitioner to register annually with the Secretary of the State Board of Medical Examiners, thereby furnishing an official list or roster once a year of all duly licensed practitioners in the state. This list is to be used by all authorities as well as the public at large".

OFFICIAL STATEMENT OF POSITION, AMERICAN PSYCHIATRIC ASSOCIATION

An intensely interesting report of the committee on legal aspects of psychiatry of the American Psychiatric Association has been received by this Journal. From the official statement of position given below it is evident that the problem is being grasped with an energy that should compel success:

"WE BELIEVE—

(1) THAT the psychiatrist's chief concern is with the understanding and evaluating of the social and individual factors entering into failures in human life adaptations.

(2) THAT crime is a designation for one group of such adaptation failures, and hence falls definitely within the focus of psychiatry, not excluding, of course, certain other branches of science.

(3) THAT crime as well as other behavior and characterologic aberrancies can be scientifically studied, interpreted and controlled.

(4) THAT this study includes a consideration of the hereditary, physical, chemical, biological, social and psychological factors entering into the personality concerned throughout his life as well as (merely) in the specific "criminal" situation.

(5) THAT from a study of such data we are enabled in many cases to direct an attack upon one or more of the factors found to be active in a specific case to effect an alteration of the behavior in a propitious direction; while in other cases where this is not possible we are able in the light of past experience and discovered laws to foresee the probabilities to a degree sufficient to make possible proper provision against subsequent (further) injuries to society. By the same experience and laws we are enabled in still other cases to detect and endeavor to prevent the development of potential criminalty.

(6) THAT these studies can be made with proficiency only by those properly qualified, i. e., scientists who have made it their life interest and study to understand and treat behavior disorders.

(7) THAT this point of view requires certain radical changes in legal procedure and legislative enactment, insuring the following provisions:

(a) The court appointment, from a qualified list, of the psychiatrists testifying in regard to the mental status, mechanisms, or capabilities of a prisoner; with opportunity for thorough psychiatric examination using such aids as psychiatrists customarily use in practice, clinics, hospitals, etc.; with obligatory written reports, and remuneration from public funds.

(b) The elimination of the use of the hypothetical question and the terms "insane" and "insanity," "lunacy", etc.

(c) The exemption of the psychiatrist from the necessity of pronouncing upon intangible concepts of religious and legal tradition in which he has no interest, concern or experience, such as "responsibility," "punishment" and "justice."

(d) The development of machinery adequate to the requirements of the psychiatric point of view in criminal trials and hearings, including court clinics and psychiatrists, and ultimately a routine compulsory psychiatric examination of all offenders with latitude and authority in the recommendations made to the court as to the disposition and teatmrent of the prisoner.

(8) THAT this also entails certain radical changes in penal practice, including:

(a) The substitution of the idea of treatment, painful or otherwise, for the idea of retributive punishment.

(b) The release of prisoners upon parole or discharge only after complete and competent psychiatric examination with findings favorable for successful rehabilitation, to which end the desirability of resident psychiatrists in all penal institutions is obvious.

(c) The permanent legal detention of the incurably inadequate, incompetent, and antisocial, irrespective of the particular offense committed.

(d) The development of the assets of this permanently custodial group to the point of maximum usefulness within the prison milieu, industrializing those amenable to supervised employment, and applying their legitimate earnings to the reimbursement of the state for their care and maintenance, to the support of their dependent relatives, and to the reimbursement of the parties injured by their criminal activities.

(9) THAT effective preventive medicine is applicable in the field of psychiatry in the form of mental health conferences and examinations, child guidance clinics, mental hygiene clincs, lectures and literature, and similar institutions and efforts.

(10) THAT the protection outlined provide an efficient and scientific solution to the problems of crime, viz:

(a) The protection of society.

(b) The rehabilitation of the "criminal" if possible.

(c) His safe and useful disposition or detention if rehabilitation is impossible.

(d) The detection and the prevention or deflection of the development of criminality in those potentially predisposed."

EDITORIAL PARAGRAPHS

Looking ahead—The next meeting of the American Medical Association will be held at Washington, D. C., May 16-20, 1927.

It is said that in treating gall-bladder infection there is a reaction from the dictum of total extirpation to conservation.

Attention is called to the new ad of the Nurses Official Registry of the Nebraska State Nurses Association which promises graduate registered nurse service.

The reported fact that but three cases of yellow fever occurred in all the Americas in 1925 should convince some people that preventive medicine is more than a name.

"Book-legging," to quote the *J. A. M. A.* is the republication in this country of a foreign, out of date, book and foisting it on the American reader as something new and authorative.

Weeping and wailing and gnashing of teeth by self-styled reformers over the statute providing for capital punishment, is again a front page feature in the Nebraska press. If in the execution of the laws we oftener demanded an eye for an eye and a tooth for a tooth, a more wholesome respect for the laws might be developed.

Dr. Robert H. Foster, a former institutional worker at the Norfolk State Hospital, now pathologist, Central Louisiana State Hospital, in a paper presented to the American Psychiatric Association on "Paresis in the Negro, concludes that paresis is more frequent in the Negro than in the White race and that the course is more rapid than in the White race.

Dr. Albert F. Tyler, Omaha, in the *Archives of Physical Therapy* for May, 1926, gives an historical sketch of the Roentgen Ray, in which he brings out several interesting facts it may be well to recall.

Konrad Roentgen was working in the University of Wurzburg as a physicist when he discovered the x-ray. He announced it in December, 1895. A static x-ray machine was exhibited at the Trans-Mississippi Exposition, Omaha, in 1898. Almost immediately after this Dr. J. P. Lord and Dr. J. P. Jensen, Omaha, equipped their offices with x-ray machines.

In an article on arachnidism in the *J. A. M. A.*, June 19, 1926, Emil Bogen, Los Angeles, presents a series of fifteen cases to show that arachnidism is a real clinical entity. The so-called "black widow" spider he thinks is the only poisonous spider in the United States. His conclusion follows:

> "Constant findings in this condition are a history of a bite by a black spider, followed by excruciating pain, mainly in the legs and abdomen, extreme abdominal rigidity, high blood pressure, elevation of temperature and a polymorphonuclear leukocytosis. Large doses of opiates and the application of heat are our main symptomatic remedies, but convalescent serum seems to be of specific therapeutic value."

A recent case was reported by the press from southwestern Nebraska.

BATS AND MOSQUITOS

Candor compels us to revise our opinion of Dr. Campbell's book on bats as antimalarial agents, reviewed last February in this Journal. In that book the author stated that bats feed chiefly upon mosquitos as shown by the fact (alleged) that their droppings are largely made up of mosquito remains. Now comes the Journal of Mammology (May 1906) with statements by trained micro-biologists that the most careful search has revealed no trace of mosquitos in bat manure; and as certain easily distinquished parts of these insests, such as the wings and mouth-parts are not destroyed by the digestive processes, it seems certain that bats do not figure largely as mosquito or malarial fighters. One of the writers, Storer, also quotes the Italian authority, Grassi, in whose opinion bats have no influence on malarial incidence, as they are very common in most malarial regions of Italy. In the same line is the fact that bats feed rather high above the ground while the anophelines are notoriously low-fliers. The last fact may account for the old belief in the Southern States, that sleeping on the second floor was something of a safeguard against malaria. Storer while rejecting Dr. Campbell's evidence of the anti-malarial uses of bats, admits the possibility that another of Campbell's conclusions may be valid; namely that bat-towers may be worth while as collectors of guano.

—H. Gifford.

MAIL DIRECTORY INFORMATION CARD PROMPTLY

During the months of June and July, every physician in the State should have received a Directory information card. Everyone is urged to fill out and return the stamped card regardless as to whether he or she has changed their residence or office address. This information will be used in compiling the Tenth Edition of the American Medical Directory, now under revision in the Biographical Department of the Association. The Directory is one of the altruistic efforts of the Association and is published in the interest of the medical profession which means ultimately in the interest of the public. It is a book of dependable data concerning the physicians and hospitals in the United States and Canada.

—American Medical Association.

THE BEAUMONT MEMORIAL FUND AND AWARD

To encourage investigations of alimentary tract function, Dr. Frank Smithies, Chicago, has presented to the School of Medicine of The University of Illinois, bonds in amount sufficient to yield annually, in perpetuity, not less than $100.00. This fund is known as "The William Beaumont Memorial Fund" and the income therefrom, as "The Annual Beaumont Memorial Award."

The Award is to be made each year to the research or clinical investigator, who, in the judgment of a Faculty Committee, has contributed the most important work during the year, in the field designated.

The first Award will be made in 1927. Manuscripts covering investigations do not have to be entered specifically for the Award nor is it required that they be submitted to the Faculty Committee. The Award is to be granted by the Committee after it has considered carefully all investigations published during any year in periodicals throughout the United States. Thus, the Award is available to workers in any institution, and is not confined to members of either Faculty or Student body of The University of Illinois.

THE LOUISIANA STATE MEDICAL SOCIETY NOT FOR THE DOCTOR OF PUBLIC HEALTH

Whereas, The American Public Health Association at its Annual Meeting in St. Louis, in October, 1925, listened to an address by one of its members, favoring a new doctor in each community where a Health Officer is needed, to be known as a Doctor of Public Health, and

Whereas, Several institutions of learning have introduced courses in Public Health whereby a layman as well as a physician, may be instructed and in a comparatively short time qualify as a Doctor of Public Health, (D. P. H.) and be allowed to advise, qualify and practice preventive medicine, and

Whereas, The Louisiana State Medical Society believes that all Health Officials should first be physicians, (M. D.), who have the proper knowledge of the sciences concerned in Public Health, and that such knowledge can not be gained by any layman in two or three years, and

Whereas, Such an arrangement of a layman being a Health Official, places a double expense on the community, since it is necessary for the community to then procure the service of an M. D. in addition to a layman, and

Whereas, The State confers on an M. D. the right to practice medicine and surgery in all of its branches, while the special licensing of a D. P. H. would be special legislation tending to take from an M. D. that right,

Therefore Be It Resolved, That the Louisiana State Medical Society believes all positions of trust pertaining to Public Health in any community should be held by physicians, (M. D.) and not by laymen holding D. P. H. licenses, and

Be It Further Resolved, That the Louisiana State Medical Society views with displeasure any move on the part of the American Public Health Association, which may express a desire to replace physicians as Health Officials by laymen with D. P. H. licenses, and

Be It Further Resolved, That a copy of this resolution be sent to the American Public Health Association; to all those institutions of learning where courses in Public Health are given with a view to conferring a D. P. H. Degree; to all Medical Colleges; to all State Boards of Health; and to every State Medical Society with a request that their component County Societies be made acquainted with the proposed activities of a Public Health Association, whose President is a layman.

ELKHORN VALLEY MEDICAL SOCIETY MEETING AUGUST 2

The meeting of the "Elkhorn" society will take place at Norfolk, August 2. Golf in the forenoon; luncheon, Country Club, 12:30, short business session immediately following luncheon; Dry Clinics at General and Lutheran hospitals in the afternoon; dinner at newly completed Hotel Norfolk at 6:30 p. m., followed by a scientific program. A record attendance is expected.

Remember that this society will have only annual meetings after this.

MEDICAL SOCIETY OF THE MISSOURI VALLEY

The 39th annual meeting of the society, to be held jointly in Omaha and Council Bluffs, promises to be one of the most important sessions of this time honored organization. The Missouri Valley Medical Association has been for many years an organization for the dissemination of medical knowledge and exchange of ideas among the profession of the states lying wholly or in part in the great Missouri river basin. Last year a remarkable program was given by this society in St. Joseph, Mo. For variability and value of material presented it was equal in quality to that given at the great session of the Tri-State at St. Paul a month later. The contributions to this program by the various departments of the Universities of Missouri, Kansas, Iowa and Nebraska were of a high order. This session did not receive the appreciation that was its due from the profession of the region.

The Universities of Missouri, Kansas, Iowa, Nebraska and Creighton University have promised for this year short, snappy contributions on subjects applicable to the day's work of the practicing physician. It is imperative that the practitioner be kept acquainted with the work going on in the laboratories, and there is no better way of maintaining this contact than by having the laboratory teachers in our medical schools appear and present "their stuff' at frequent intervals before associations composed of practitioners.

The program planned for the Omaha-Council Bluffs meeting will consist of papers and lectures on various scientific and clinical subjects and clinics. Fully half of the time will be devoted to clinics given by men of national reputation. Among those who have already consented to appear on the program and hold clinics are: Dr. Hilding Berglund, Professor of Internal Medicine at the University of Minnesota, Minneapolis; Dr. Elliott C. Cutler, Professor of Surgery of Western Reserve University, Cleveland; Dr. Irving S. Cutter, Dean of Northwestern University College of Medicine, Chicago; Dr. McKim Marriott, Professor of Pediatrics of Washington University, St. Louis; Dr. E. C. Rosenow of the University of Minnesota, Mayo Foundation, Rochester, and Dr. Gabriel Tucker of the Bronchoscopic Clinic of the University Hospital, Philadelphia.

Negotiations are under way with several other men of equal prominence in their respective lines.

The Program Committee will make this meeting one that no up-to-date clinician can afford to miss. A complete program will be published in ample time. Reserve the dates now—September 15-16-17. Headquarters—Hotel Fontenelle, Omaha, Dr. A. D. Dunn, of Omaha, is president. The program committee is composed of: John E. Summers, Omaha, Chairman;

Donald Macrea, Council Bluffs, Vice-Chairman; William Wherry, Omaha, Nebr.; P. T. Bohan, Kansas City, Mo.; E. H. Skinner, Kansas City, Mo.; T. G. Orr, Kansas City, Mo.; J. M. Mahew, Lincoln, Nebr.; Granville N. Ryan, Des Moines, Iowa; Guy L. Noyes, Columbia, Mo.; Fred Smith, Iowa City; John M. Bell, St. Joseph, Mo.

Arrangement Committee: Earl Sage, Omaha, Nebr.; M. E. O'Keefe, Council Bluffs.

Chas. Wood Fassett, M. D., Secretary, 115 East 31st St., Kansas City, Mo.

THE ENSWORTH-CENTRAL MEDICAL COLLEGE ALUMNI

The second annual meeting and banquet of the Ensworth-Central Medical College Alumni will be held at Hotel President, Wednesday evening, Oct. 13, 1926, during the Kansas City Fall Clinics week. We now have an enrollment of fifty members. We are anxious to have enrolled all of the graduates of the Northwestern, Central and Ensworth Medical Colleges, and want them with us at this meeting. The dues are $1.00 per year. The professors of the three colleges are eligible to membership. An entertaining program is being arranged. Please send your name to the secretary at once, stating that you will be with us.

Charles Wood Fassett, M. D., Secretary, 115 East Thirty-first street, Kansas City, Missouri.

BEFORE IT IS TOO LATE

If you've a tender message or a loving word to say,
Don't wait till you forget it, but whisper it today,
We live but in the present, the future is unknown—
Tomorrow is a mystery, today is all our own.
The tender words unspoken, the letter never sent,
The long-forgotten messages, the wealth of love unspent—
For these some hearts are breaking, for these some loved ones wait,
So show them that you care for them before it is too late.

"DO HEIGHT AND WEIGHT TABLES IDENTIFY UNDERNOURISHED CHILDREN?"

A study to determine the degree to which physicians and nutrition workers can safely trust the weight tables ordinarily used in selecting undernourished children, recently completed by Louis I. Dublin, Statistician of the Metropolitan Life Insurance Company, and John C. Gebhart, director of the department of social welfare of the New York Association for Improving the Condition of the Poor, has just been published in pamphlet form by the latter organization from its office at 105 East 22nd Street, New York. Eight charts illustrate the salient features of the text.

The movement for improving the nutrition of children has been extensively developed during recent years on the assumption that the weight of the child was a very safe, and, by some, an infallible guide by which the nutrition worker could in the first instance single out those who needed attention. Many physicians and nutrition workers have, however, found difficulties and discrepancies from time to time which tended to indicate that all was not well with the method. In the study in question it has been possible to determine definitely, for one group of children, at least, whether underweight and under-nutrition are, in fact, synonymous terms and, if they are not, to what extent those who have followed the usual methods have probably erred.

The materials at the disposal of Messrs. Dublin and Gebhart consisted of the examination records of 1878 boys and 2169 girls under the care of the Association for Improving the Condition of the Poor in its health work, among the Italians in the Mulberry district of New York City. The association was careful to place this work under the direction of a prominent pediatrician, Dr. L. C. Schroeder, who examined the apparently well children coming under the observation of the health center. The doctor's diagnosis of defective nutrition was based on the picture of the whole child and not on weight and height alone. Such items as the state of musculature, the lustre of the eyes, the color and bearing of the children, their posture, and the relative amount of subcutaneous fat were all taken into account in assessing the child's nutrition. In addition, the physical measurements of height and weight were given careful consideration in relation to the child's age.

It was found that 77.2 per cent of the boys and 67.1 per cent of the girls who were actually undernourished, would have been missed entirely, if reliance had been placed solely on the standard weight tables with the 7 per cent limit of underweight. The table using the ten per cent limit would have caused to be overlooked 89.8 per cent of the undernourished boys and 81.8 per cent of the undernourished girls.

In the case of well-nourished children, the tables operated in closer agreement with actual conditions, as was shown by the fact that 97.6 per cent of all the boys and 94.5 per cent of all the girls who were found by the doctor's examination to be well nourished, would also have been so selected by the standard weight tables.

The worst results in the operation of the standard weight tables were apparent among the youngest children. Under age 6, only the smallest number of undernourished boys would have been selected by the weight tables. At age 3, for instance, as few as 7 per cent of the total number of children found by the physician actually to be undernourished, would have been selected under the 7 per cent table, and at age 5, less than 2 per cent by the 10 per cent limit table. The figures for the girls were somewhat better, although they, too, were quite low. The survey continues:

"The trouble with the use of the standard weight tables in finding children in need of nutritional care is not that those singled out are badly chosen but rather that not enough of them who are truly malnourished are found by this method. Underweight is a sharp enough index of malnutrition, but it does not cut off a big enough segment of those who should be included".

The survey concludes that "a diagnosis of nutrition should be made in every case only after a careful physical examination by a competent physician". In communities where it is impossible to give every child a thorough phyicsal examination it is suggested that "selection be made as heretofore of all the children who are 7 per cent, under weight, but only as a first measure. These children will be found on examination to be, for the most part, malnourished. Possibly from one-quarter to one-third might have been excluded by the physical examination, but no great harm can be done by their inclusion. But, this entire group of underweight children, it must be remembered, represent only a very small fraction of the truly malnourished children. To their number, should be added an additional number, possibly as many more, who are in need of special care and who can as readily enough be selected by parents, teachers, and, even on casual inspection, by nutrition workers, on the score of general physical condition.

"Such physical signs as poor color, indifference to studies, lack of appetite, readiness to fatigue; all of these are good indications of the possibility of malnutrition. These children may well be and often are of good weight, as we have found, but it is they who make up the great bulk of the cases which, on careful examination, show defects of nutrition. By combining all of these methods, it is possible that the majority of the cases requiring care will be selected."

DIAGNOSING EARLY SYPHILIS

Early syphilis cannot be readily diagnosed if the primary lesion is cauterized prior to dark field examination. No medication should be used until after this laboratory method has been utilized.

Upon diagnosis of early syphilis the physician in charge of the case is in a position of "rule or ruin". Prompt institution of recognized treatment—arsphenamine and mercury — will cure this treacherous condition.

Because the old "mixed" treatment will frequently result in the disappearance of clinical evidence of syphilis makes it imperative that the modern not antiquated methods and technique be followed. Who can evaluate the untold damage that has resulted from the use of cacodylate of soda (once advocated by some prominent in the profession). This drug crept into literature purported as a valuable remedy in the treatment of syphilis but today we recognize that it does not contain the chemical form of arsenic that exerts a spirocheticidal action such as the disodium salt resulting from the properly prepared solution of arsphenamine. There is as much or greater difference in the action of arsphenamine and cacodylate of soda as that of mercuric and mercurous chlorides.

Consider a case of syphilis, primary lesion, diagnosed by dark field examination being placed immediately upon cacodylate of soda intravenously — what happens? The primary lesion did heal — but in 5 weeks this case happened to come to Nebraska and called upon a competent physician who recognized early secondary lesions and instituted proper treatment.

Proper treatment instituted upon diagnosis would have averted not only secondary lesions but would have prevented the development of blood change.

When one realizes that about 20% or more of all cases of syphilis have neuro involvement what of the future if every effort is not made to promptly and effectively stamp out the disease in its incipiency.

P. H. Bartholomew,
A. A. Surgeon, U. S. P. H. S.

THAT DIARRHOEA OF WORDS

(Editor's note—An unannounced visit was made to the headquarters of one of the cultist schools during the past summer. The following legends were found decorating the walls of the buildings.)

"To eat is human; to digest devine."

"If at first you don't fill up, try, try, again."

"If at first you don't suck seed; keep sucking."

"Only the hen can make money by laying around."

"Is wifey a bum cook? Eat here and keep her for a pet."

"Onions make you physically strong and socially weak."

"Drink and be merry, for it makes life worth while."

"The art of remembrance is the gentle art of forgetting."

"My company 'tis of thee, hungry internally, of thee, I sing."

"Eve was Adam's first rib steak; but it cost him his grub stake."

"It is while we are green that we grow; when we think we are ripe we begin to rotten."

"Three classes of people are entiled to indulgence in indolence, invalids, prisoners and lunatics. R. U. Busy?"

"Cabbages grow from within, outward and yet many people cannot understand the fundamentals of Chiropractic."

"Is it your health or your dollar the doctor works for when your appendix is worth $250? Something's going to happen when you call him in."

"Physicians association members would go on a strike, if they were not afraid the public would soon find out how to live without them."

"Everybody thinks everybody else ungrateful. That is why we love dogs. They give us $20.00 worth of gratitude for ten cents worth of biscuit."

"Glum? Keep mum.
Want to grumble? Be humble.
Cling? Just sing.
Can't sing? Just cling.
Have fear? God's near.
Money goes? He knows.
Left? Not bereft.
Is there rust? Work, trust."

"The M. D. is well educated.
He is of the high brows.
He knows a million things, not so,
None of which work.
The D. C. uses common sense,
He knows one thing that is so,
Will work and works,
It is to live and let live."

THE PASSIONATE MEDICO TO HIS LOVE

Ah, honeyed, honeyed heart, blood-sugar free,
Beat close on mine in murmurless rhythm tuned!
Ah, septic, septic kiss with ecstasy
From streptococci viridans immuned!
Through portals alkaline and tonsilless
Let me feel cool the motion of thy breath,
Or swoon anesthetized 'bove thy caress!
Thy vasomotors would suffuse pale Death!
Press close that I may feel thy blood's soft urge
With pressure low and hemoglobin right,
Whose polymorphonuclears emerge
In true accord with every leucocyte.
Then let me stroke thy dark hair's glory, seborrhea free,
With every ductless gland attuned harmoniously.

—Life.

THE SOCIETIES

The **Cheyenne County Medical Society,** at a meeting at Kimball, July 12, had the following program after a 6:30 dinner: "The General Practitioner's Laboratory", G. F. Zarbaugh, Dalton; "Dry Clinic with Surgical Problems", A. L. Miller, Kimball.

The **Saline County Medical Society** was entertained by Dr. J. C. Byers and Dr. Frank T. Hamilton, Friend, June 15th. About twenty doctors from Friend, Milligan, Geneva, Fairmont, Exeter, Seward, Milford and Crete were present. "Papers relative to medical subjects were given by Dr. J. C. Byers, and Dr. V. V. Smrha, of Milligan, followed by a round table discussion. After two hours of eating, smoking and talking, the doctors left for their homes, feeling the Friend doctors were good entertainers."

A combined medical meeting and picnic of **Nemaha and Richardson County Medical Societies** was held at Shubert, Wednesday, July 14. Program follows:

6:30 p. m., sharp. Picnic dinner at City Park. Each doctor was expected to bring his wife and each wife a picnic lunch which was served cafeteria style. Cool drinks and ice cream were supplied by the committee.

7:30 p. m. Medical meeting — "Focal Infection", Dr. W. S. Shearer, Omaha; "Gastric and Duodenal Ulcer", Dr. A. C. Stokes, Omaha.

HUMAN INTEREST TALES

Dr. John Y. Racines, has located at Palmer.

Dr. Felite Sucgang, has located at Bushnell.

Dr. A. J. Edstrom has opened a hospital at Stromsburg.

Dr. T. Y. Dorwart, has moved from Chappell to Lexington.

Dr. R. F. Jester, Doniphan, has gone east to do postgraduate work.

Dr. L. O. Hoffman, Omaha, has gone to Vienna for four months' study.

Dr. F. W. Heagey and family visited in Ottawa, Canada, during July.

Dr. and Mrs. A. R. Knode, Omaha, spent the month of July at Lake Okoboji.

Dr. and Mrs. Leroy Crummer leave August 1st, for a trip to southern Europe.

Dr. and Mrs. Roscoe Smith, Lincoln, left July 1st for a Mediterranian cruise.

Dr. L. A. DeLanney, Omaha, had a fishing trip to the Minnesota lakes in July.

Dr. T. J. Lawson who retired from practice at Long Pine, will reside at Ainsworth.

Dr. A. L. Barr who left Nebraska City this spring has located at San Diego, Calif.

Dr. S. G. Allen, and wife, Stanton, motored to Wyoming and Idaho, in June and July.

Dr. Earl C. Sage, Omaha, has returned from a trip to Alaska and the Canadian Rockies.

The marriage of Dr. O. A. Kostal, Giltner and Miss Flo Strickland Bashford, is announced.

Dr. Lowell Dunn has returned to Omaha after a five months' period of study in Chicago.

Dr. John F. Cummings, formerly of Boston, has become associated with Dr. R. H. Kerr at Alma.

Dr. Sanford Gifford who took his family to the Pacific coast for a season, has returned to Omaha.

Dr. F. M. Watke, Columbus boy, recent graduate and interne, has gone to Tabor, S. D., to practice.

Dr. W. C. Becker and Dr. E. E. Rider, Lincoln, have gone to Vienna for four months postgraduate work.

Dr. A. E. Fletcher, Omaha, has gone to the New York Cancer Research hospital for a period of study.

Dr. G. B. Desparois and family, who left Pierce a year ago to study in Philadelphia, have returned to Nebraska.

Dr. H. O. Drew, has moved from Clarks to Albion, having acquired a part of the Dr. Harvey Howard equipment.

Dr. A. J. Stewart, Mitchell, who a year and a half ago, went to the mission field in China as ad interim medical missionary, has returned.

Dr. Harvey Howard for about a dozen years in practice at Albion, has returned to "the old home town," Newport, Maine, where he will engage in hospital work.

Dr. A. D. Cloyd Jr., son of Dr. A. D. Cloyd, Omaha, was married to Miss Jean Hampton, Omaha, July 22. They will live in Detroit where the doctor is connected with the Ford hospital.

Dr. Mildred E. Scheetz, a former Peru, Nebr., girl, more recently in the government service in Washington, D. C., was married to Mr. Norris S. G. Wolfenden of Pasedena, Calif.

Drs. K. S. J. Hohlen and A. D. Munger, Lincoln surgeons, returning from a ten days' fishing trip in Dakota and north Nebraska lakes, tarried with the editor long enough to give him some very fine fish (stories).

Dr. H. E. Potter, Fairbury, president-elect of the Nebraska State Medical Association and Dr. F. A. Long, Madison, editor of this Journal were appointed by Governor McMullen, delegates to the World's Conference on Narcotic Education in Philadelphia, July 5-9. Unfortunately neither found it possible to attend the conference.

NECROLOGY

William S. Fast, Ingleside, Nebr.; Ensworth Medical College, St. Joseph, Mo., 1893; some time practitioner at Corning, Mo., Barada, and Falls City, Nebr., and St. Joseph, Mo.; superintendent, for some time previous to Feb., 1916, of the Institution for the Feeble Minded at Beatrice, Nebr.; since 1916, superintendent of the Hastings State Hospital at Ingleside; councilor for the Tenth District of the Nebraska State Medical Association; president-elect of the Hastings Rotary club; one of the most beloved of Nebraska physicians whose personality was deeply imprinted on the lives of those with whom he came in contact; died of organic heart disease, June 27, 1926, aged 60 years.

An intimate personal and professional friend furnishes the following tribute to the deceased:

"I am impelled to say a few words in appreciation of Dr. Fast of Ingleside who has just left us.

"Through the many years he has been in Nebraska he has been a useful and steadily growing citizen. He has filled every place with honor to himself and to those who by appointment or influence have sought his preferment. He was a man of education and ability in his profession and one who had a clean-cut viewpoint as to right and wrong and as to the ethics of the profession. His dealings with the profession have been unfailingly fair and cordial. To his patients he was a kindly, never-tiring friend, a man busy even to the last, never asking others to bear his burdens, never shirking a duty, he went quietly out from his busy world. The veil parted and he stepped beyond. Hundreds of the profession will miss him and thousands of the patients who have been under his care will regret his going. Personally he was my friend; I valued him and I grieve with those who are nearest and dearest to him in their loss.

"I send this, a personal tribute to one who has passed on but who for many years has been one of the large number closely associated with friendly interest in our professional endeavors."

—Benj. F. Bailey.

Charles S. Minnich, Palmer, Nebr.; Medical College of Ohio, 1884; a practitioner at Palmer for thirty-five years; a man highly regarded in the community in the welfare of which he had taken a very active part; member Nebraska State Medical Association for many years; died July 4, 1926, seven weeks after a stroke of paralysis, aged about 67 years.

A COUNTRY DOCTOR

In a small town, not very far from Omaha — at California, Mo. — a country doctor has died after fifty years of community service. He held a record of never refusing to visit a patient, even though he knew no fee would be forthcoming. It is estimated that he lost a fortune through unpaid doctor bills during the half century.

That community has lost a man worthy to sit with presidents or judges or weathly philanthropists. His name may never be inscribed upon granite, nor written upon history's pages. It has a better place; it is engraved upon the hearts of common men.

Generally the world looks with a sort of tolerant scorn upon a man who has such poor business sense that he will not rate his services for what they are worth in dollars and cents. But somehow, down in our hearts, do we not know better?

There are a great many bad people who naturally take advantage of one who goes about doing good. Jesus, the Christ, was constantly beset and finally crucified by such, but that does not prevent his kindly acts, after 2,000 years, being still the standard of all goodness.

And no doubt this country doctor got much more out of life than many men far more successful in material wealth than was he. He got the satisfaction of performing daily a task that he loved; he got the joy of knowing that he could alleviate human misery and pain; he got the sweet reward which always comes to those who follow their star. He did not tear down, not even human illusions; he built bodies and souls. And a kindly death came while he was seated at the bedside of a patient and took him hence, where we may hope his helpful soul goes on working through eternity.

Oh, yes, it is the fashion to scoff at men like this. We moderns generally judge a man's success, not by the good he has done, but by the dollars he has accumulated. But even those who laugh loudest feel deep within themselves that the best joy in life comes, after all, in service to others — the best happiness lies not in what we get, but in what we give. —Omaha Daily News, Nov. 13, 1925.

BOOKS REVIEWED

Asthma, Hay Fever, Urticaria and Allied Manifestations of Allergy, by William W. Duke, Ph. B., M. D., 8-Mo., cloth, 339 pps., with 75 illustrations. Price $5.50. The C. V. Mosby Co., St. Louis, 1925.

This volume by a Kansas City internist, said to be based entirely on practical experience extending over twelve years and including an analysis of 500 cases, is the most extensive presentation of the subject yet published. This is a very interesting subject and opens a vast field in diagnostic research and in the treatment of sensitization.

Experimental anaphylaxis, serum sickness, bacterial allergy, natural hypersensitiveness, sensitiveness to feathers and animal dust, food and drug idiosyncracies, etc., are treated under special heads.

The diagnosis and treatment of allergies is a highly specialized thing, but every physician should read this book to get the background to a very interesting and very annoying series of symptoms resulting from sensitization.

NEBRASKA
PRINCIPAL CAUSES OF DEATH — 1925*

Total Deaths — 12,475

Typhoid and Paratyphoid Fever	36
Scarlet Fever	32
Whooping Cough	75
Diphtheria	77
Influenza (All Forms)	473
Erysipelas	22
Acute Poliomyelitis	42
Lethargic Encephalitis	18
Meningococcus Meningitis	5
Tetanus	9
Tuberculosis (All Forms)	438
Syphilis	48
Gonococcus Infection	7
Purulent Infection, Septicemia	70
Cancer (All Forms)	1,196
Diabetes Mellitus	253
Alcoholism (Acute or Chronic)	26
Meningitis, Simple and Cerebrospinal	46
Cerebral Hemorrhage, Apoplexy	1,142
Endocarditis and Myocarditis (Acute)	121
Angina Pectoris	152
Other Diseases of the Heart	1,364
Arteriosclerosis	192
Embolism and Thrombosis (Not Cerebral)	47
Bronchitis (All Forms)	66
Pneumonia (All Forms)	1,042
Ulcer of Stomach and Duodenum	71
Diarrhea and Enteritis	363
Appendicitis and Typhlitis	245
Hernia and Intestinal Obstruction	137
Nephritis (Acute and Chronic)	752
Diseases of the Prostate	61
The Puerperal State	160
Malformations, Hydrocephalus and Congenital	177
Senility	228
Early Infancy:	
Congenital Debility, Icterus and Sclerema	139
Premature Birth	504
Injury at Birth	80
Suicides: (All Forms)	172
Homicides: (All Forms)	56
Accidents:	
Railroad Accidents	73
Street Car Accidents	6
Automobile Accidents	125
Excessive Heat	24
Excessive Cold	4
Legal Electrocution	1

Nebraska, 1925
Division of Vital Statistics

Total Births	29,179
Attended by Physicians	28,581
Attended by Midwives	478
Attended by others	120
Hospital Births	4,377

Puerperal Deaths

Accidents of pregnancy	0
Abortion	10
Ectopic gestation	5
Others under this title	9
Puerperal hemorrhage	18
Other accidents of labor:	
Cesarean section	4
Other surgical operations and instrumental delivery	1
Others under this title	11
Puerperal septicemia	49
Puerperal phlegmasia alba dolens, embolus, sudden death	12
Puerperal albuminuria and convulsions	39
Following childbirth not otherwise defined	2
Total	160
Total deaths all causes	12,475
Infant mortality	1,679

Nebraska, 1925

Total deaths all causes	12,389
Infant mortality	1,662

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*Figures — exclusive of Stillbirths.

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THE SURGICAL DIABETIC* *a

DANIEL FISKE JONES, M. D., F. A. C. S.

Boston, Mass.

With the introduction of insulin the diabetic patient has become a much more active problem in surgery than ever before. Previous to the introduction of insulin, surgery on diabetics was rarely undertaken except in cases of absolute necessity, and not infrequently the family and family physician preferred to let the patient die rather than take a chance with an operation. A few experts such as Allen and Joslin made every effort to teach that many patients with diabetes could be operated upon successfully if properly prepared before operation and properly handled after it. These men, however, made little impression upon the medical profession in general and not infrequently we saw patients and advised operation only to be told by the family physician that the patient was on a diet, but in such condition that they would never stand an operation. Thanks to insulin and the efforts of those interested in this work there is no such fear at present; not only are necessary operations done but many deliberate operations are carried out.

The problem of surgical interference in what may be termed deliberate surgery is, we believe, quite easily solved at the present time; that is, each patient must be considered as an individual problem and not as one of a group. A patient with diabetes may be operated upon as any patient without it if we take into consideration his handicap other than his diabetes. It is true that diabetics have a lowered resistance to infections, and that there is a certain amount of liver damage as shown by Jones and his associates which probably accounts for the fact that they do not withstand surgical shock as well as normal individuals. Practically all these cases have a subnormal temperature after any major operation. It is possible that the use of diathermy in the region of the liver as suggested by Crile might be of some value. Aside from these considerations each individual should be considered in relation to his infirmities and not according to his age, or the fact that he has diabetes. Diabetics have circulatory and kidney diseases much earlier in life than normal individuals, and it is also true that most of the diabetics who require operation are well along in years. Fifty-one per cent of them are between fifty and seventy years of age. In this connection it may be well to remember that Root has warned us that in the first year of the disease the diabetic needs special attention to prevent acidosis at the time of operation. Our attitude should not be, we believe, as it has been in the past, to refuse operation to these patients because they have diabetes, but we should urge operation because they are diabetics, in any condition which may become acute or urgent later, or in any condition which may affect the diabetes unfavorably, such as gall-bladder disease, appendicitis, recurrent intestinal obstruction, hyperthyroidism, bad tonsils and teeth, and various other conditions. It must be remembered that it is much better to choose the time for operation when the patient can be properly prepared, than to be forced into operating at an unfavorable time.

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* Paper read before the Nebraska State Medical Association, annual meeting, Omaha, May 11-13, 1926.

*a Paper prepared with the cooperation of Leland G. McKittrick, M. D., and Howard F. Root, M. D. From the New England Deaconess Hospital Clinic.

Removal of any load from the patient by operation seems to improve the diabetic condition. It may be stated that, clinically, the removal of gall-stones often gives the diabetic patient a new lease of life, his carbohydrate tolerance increases and the improvement in general condition is marked. A young man with vague gastric symptoms and an occasional attack of epigastric pain could not be kept sugar free on an increasingly strict diet. Removal of a normal appearing gallbladder containing stones has made it quite easy to keep him sugar free on a much more liberal diet. In these cases we do not know, however, what part sepsis plays.

An important group of cases has been the gastric and duodenal ulcer group. A man of forty-seven with a long history of ulcer, and diabetes for a year and a half, was unable to work for a month before entrance. Within two months after a gastroenterostomy he was at work and able to support a family of eight children. A man of forty-five with a duodenal ulcer and some pyloric obstruction lost weight and strength until confined to bed. Fifty units of insulin and a C-50, P-70, F-100 diet would not keep him sugar free. After a gastro-enterostomy he left the hospital on a diet of C-80, P-63, F-150, without insulin, feeling well and gaining weight.

Patients from whom abdominal tumors of various kinds have been removed have usually shown marked improvement, but not always.

The most striking and most important group of cases are those in which septic foci, acute, subacute, or chronic are removed. The cholecystitis cases are the striking examples in which great immediate and permanent benefit is derived. In other words, these patients are septic and diabetes cannot improve in the presence of sepsis. Removal of a focus of infection changes the aspect of the case from that of a patient losing ground steadily to a comparatively healthy person in whom it is relatively easy to control the diabetes.

A much more important reason for early operation in acute abdominal infection than to increase the carbohydrate tolerance is the great danger to the patient from the unrecognized seriousness of the infection. These patients do not react to pain or infection as normal individuals do; the infection is, therefore, likely to get beyond a localized area without being recognized. These patients are also more prone to have general infections than normal individuals. We have seen a case of appendicitis develop and go on to general peritonitis in the hospital under our supervision without its seriousness being recognized.

The possibility of serious diabetic complications following operation is always present, but fortunately we are equipped at the present time with various means of preventing or controlling these complications. These are: (1) comprehensive cooperation between the surgeon and internist; (2) careful pre-operative study and preparation; (3) a judicious selection of the operation and anaesthetic; (4) vigilant post-operative care by the internist as well as by the surgeon; and (5) insulin.

Cooperation between the internist and surgeon is so important in these cases, we believe that deliberate operations should not be undertaken except in centers where the cooperation of an internist interested in this particular group of cases is available.

While we surgeons are inclined to take the glory coming from the successful outcome of these cases the greater part of it is due to the internist who prepares the patient for operation, and gives close attention to the post-operative care, both of which are of the greatest importance to the patient.

The surgeon's part in this combined effort comes in the selection of the anaesthetic, the operation, and his technic during the operation. In those operations not on the extremities we have little to fear in regard to circulation but we still have a patient with lowered resistance to infection. A slight slip in asepsis or rough handling of tissue is often sufficient to cause an infection which may be a serious handicap to the patient's recovery.

When we come to the consideration of infection and gangrene of the extremities, the problem is much more complicated and more interesting than formerly. The hard and fast rule that infections and gangrene of the extremities in diabetics requiring amputation, must have a thigh amputation no longer holds. Nor does the rule that a toe must never be amputated in a diabetic. We must have, we believe, an entirely new set of rules for the treatment of these cases since the introduction of insulin.

Each case must be considered individually, and I will try to give you on the screen some of the reasons why certain cases should be treated in one way and some in an entirely different way.

The present method of treatment has been brought about by the introduction of insulin which causes a reduction in blood sugar and this reduction permits wounds to heal, and also increases the resistance of the patient to infection. It has been shown experimentally that it is the high blood sugar which prevents healing. It has been suggested by Judd that wounds heal better with insulin applied locally, but we have had no experience with its use in this way. Because insulin does aid the healing of wounds, we must be careful to distinguish between wounds that do not heal because of a high blood sugar and sepsis and those that do not heal because of poor circulation. It must be definitely understood that insulin has no effect upon the circulation of the part, or at least upon the already sclerosed vessels.

The treatment of ulcerations, infections and gangrene are problems to be decided in each individual case. The age and general condition of the patient, the severity of the diabetes, the effect the lesion is having upon the disease, the circulation of the part, which is determined by the condition of the vessels of the part, the amount of pain, the color and temperature of the part, the speed with which the color returns when the foot is raised then lowered, and the distension of the veins of the part, are all considered in deciding what shall be done for the lesion.

The first thing to be considered in any case of infection or gangrene is as to whether it is an emergency or not. If the infection and condition of the patient are such that immediate operation seems best, it should be done regardless of the condition of the diabetes, and the diabetes treated after the operation. In other worde treat the condition then treat the diabetes.

I would like to warn you at this point that large doses of insulin before operation are unwise and unnecessary, as the production of sugar and acid can be adequately controlled after the operation and it is unnecessary to subject the patient to the dangers of hypoglycemia.

Small ulcerations on the feet are the most frequent lesions, and much thought and experience are necessary to treat them properly. Those over toe joints in the great majority of cases connect with the joint or an osteomyelitis and require operation, a simple amputation of the toe, at times an amputation of the thigh. One must be careful to select the proper operation and must not advise amputation of the thigh when the circulation of the foot is good and there is only a simple ulcer as was done in a recent case, for that patient is likely to live to laugh at you.

Gangrene of one or more toes may require amputation of the toes, an amputation at the junction of the middle and upper thirds of the leg, a Gritti-Stokes, or a thigh amputation, depending entirely upon the condition of circulation and condition of the patient, as indicated above.

Infections require most careful consideration as regards treatment; either incision and drainage or amputation at the necessary point. At times these cases are emergencies requiring immediate amputation; at times delay to permit localization before amputation can be done with safety. Judgment in these cases is of first importance.

As to amputations we believe that amputation of a toe or toes is justifiable in many selected cases. Amputation above the metatarso-phalangeal joint of the great toe should not be done, as the foot is of little value and is not worth the risk taken in trying to save it. No amputation above the metatarso-phalangeal joint should be done on a diabetic below the junction of the middle and upper thirds of the leg. Amputations of the leg above this point are not so good in the great majority of cases as the Gritti-Stokes. This amputation gives a very useful and comfortable end bearing stump, particularly useful for those who have to stand much, or want to move about.

Amputation of the thigh should be done in the very old. the very ill, and usually in those without popliteal pulsation.

Amputations in diabetics must be done with the greatest care to prevent sepsis. We have now for about eight years not used drainage in any of the amputation stumps unless the incision is made through a septic area. We have never lost a flap and have had but one deep infection, except in those cases in which there was a septicaemia at the time of operation, as shown by positive blood cultures taken before operation.

Selection of the anaesthetic is, we believe, of great importance. While the Mayo Clinic advocated the use of ether at one time, we believe it to be a dangerous anaesthetic for the average surgeon to use in these cases. We believe that Joslin's opinion still holds goods, that "ether anaesthesia is a burden which a light case of diabetes may easily bear, which may change a moderate to a severe case, and to a severe case prove fatal." Ether does have several advantages in abdominal cases: It gives relaxation which permits more rapid operation with less bruising and handling of the tissues and organs. In fact, we believe it to be necessary to use it in certain abdominal conditions which require relaxation, but it may be reduced to a minimum by combining it with local anaesthesia, or nitrous oxide and oxygen, or ethylene and oxygen.

The disadvantages are that it causes a hyperglycemia and acidosis. This increased blood sugar has been shown to have its origin in liver glycogen. (Sansum and Woodyatt). Bloor found a rise of blood fat in normal dogs during ether anaesthesia varying from 40% to 100%. It is also a well-known clinical fact that there is more nausea and vomiting following ether anaesthesia than gas-oxygen or spinal anaesthesia. It is important to avoid nausea and vomiting because they interfere with the intake of food and liquids, which are essential to the postoperative diabetic.

It will be seen, therefore, that while ether may be used, it is not safe, and because certain surgeons have been able to use it without serious results, that is not sufficient reason for the average surgeon to use it. Undoubtedly, the best general anaesthetic that we have in cases which do not require much relaxation, is ethylene and oxygen, combined in abdominal cases with local anaesthesia. Nitrous oxide and oxygen is rather more likely to cause cyanosis and cyanosis produces an acidosis. While much better than ether we believe it not so good as ethylene.

Local anaesthesia is undoubtedly the anaesthetic of choice in those cases in which it can be used.

Spinal anaesthesia which has been much abused is, we believe, a most valuable anaesthetic in all perineal and lower extremity conditions. We use it for amputations of the leg and thigh and even toes at times. It is also useful in all septic conditions of the extremities. The dangers of this anaesthetic may be greater than ether or gas anaesthesia in normal individuals, but we are convinced that it is safer in the diabetic.

If morphia is used in these cases, it must be remembered that many of them are very feeble and that a large dose may be sufficient to put the patient in a very serious condition.

In preparing the diabetic patient for operation, radical procedures designed to render the patient sugar-free may cause actual damage by depleting the glycogen content of the liver and other tissues, and thus impoverishing a valuable protective agency. It may even be desirable to have small amounts of sugar in the urine at the time of operation, for then depletion of the carbohydrate reserve seems less likely to occur.

Acidosis is much more dangerous than large amounts of sugar in the urine. Unless operation is imperative, it should be delayed until the acidosis is controlled. In emergency cases, operation may be successfully performed in the presence of acidosis, but the responsibilities of the surgeon and internist are thereby greatly increased and the prognosis proportionately poorer. From the point of view of operability, diacetic acid in the urine is a satisfactory index of acidosis.

Adequate fluid intake is essential. The patient's tissues should be neither dehydrated nor water-logged, for either condition may prevent proper metabolic response to the unusual burden imposed by the operation. Unless the patient is very dry and dehydrated, from two to three liters of fluid a day for two days is probably adequate preparation. If the fluids cannot be retained when administered by mouth, they may be given by rectum, subpectorally or intravenously.

The diet should contain from 80 to 100 gm. of carbohydrate each day for at least two days immediately preceding the operation. The protein should not exceed 1 gm. per kilogram of body weight of the patient. The fat content of the diet should be low, thereby diminishing the possibility of ketosis by limiting the number of fat radicals to undergo incomplete splitting. From 50 to 75 gm. of fat a day is adequate, and in some cases much less may be given. The diet given in the accompanying tabulation adequately meets the pre-operative requirements of the average patient who is not too ill to eat. It contains approximately 100 gm. of carbohydrate, 45 gm. of protein and 58 gm. of fat.

DIET FOR USE BEFORE OPERATIONS

Breakfast

One-half grapefruit
One large dish of oatmeal
Three ounces of milk

One egg
One Uneeda biscuit
One small butter ball

Dinner

One small piece of meat
One Uneeda biscuit
One small butter ball
Two ounces of milk
One small orange

Supper

One egg
One Uneeda biscuit
One small butter ball
One shredded wheat biscuit
Three ounces of milk
One small orange

Tea, coffee, cocoa shells and saccharin as desired.

If the patient is too ill for this menu, carbohydrates must be persistently administered in small increments in the form of liquids given by mouth and by rectum. Two six-ounce rectal injections of 10 per cent glucose solution and ten ounces of orange juice, a pint of oatmeal water gruel and half an ounce of levulose sugar in tea or in the gruel given by mouth, are equivalent to 101 gm. of carbohydrate, and we have experienced no difficulty in administering these slowly throughout the twenty-four hours. The oatmeal water gruel is made by re-heating eight ounces of cooked oatmeal, the equivalent of one ounce of dry oatmeal, in one pint of water, straining out the husks and diluting the gruel to the desired consistency. We have never found it necessary to resort to the intravenous injection of glucose. Insulin should be used to prevent undue accumulation of sugar in the urine. Two hours before operation, five ounces of orange juice is given by mouth.

On the day of operation, the usual morning dose of insulin should precede by thirty minutes the 150 gm. of orange juice given two hours before operation. To give large doses of insulin just before the operation is both unwise and unnecessary. The production of sugar and acid can be adequately controlled after the operation, and it is unnecessary to subject the patient to the dangers of hypoglycemia. Insulin should be used to control the amount of sugar and diacetic acid in the urine and to enable the patient to take from 80 to 100 gm. of carbohydrate each day, but no more should be expected of it before the operation.

After operation, minute attention to detail is essential, and for this reason a special nurse is very desirable, although not indispensable. The more diabetic training the nurse has had, the more intelligent will be her care of the patient; but any well-trained nurse can carry out the simple procedures necessary. The usual watchfulness accorded the nondiabetic patient who has been operated on should be redoubled for the diabetic patient. Nothing should be left undone to make him comfortable and to relieve him of every conceivable burden, for he will convalesce in direct proportion to the size of the load he is called on to carry.

A single specimen of urine is obtained every three or four hours after the operation and is tested for sugar by the Benedict test, and diacetic acid with ferric chlorid. If necessary, a self-retaining catheter may be inserted and, in this case, specimens may be obtained at any interval. It is best not to delay more than three hours if any doubt exists about the patient's condition. If a catheter is used, hexamenthylenamin should be administered. These single specimens, as obtained, are tested by the nurse, who then administers insulin on the basis of the qualitative results. The amount of sugar may be quantitated if desired, but this adds no helpful data. The single specimens should be carefully preserved in order that the twenty-four hour urine specimen may not be depleted.

Insulin is administered subcutaneously on the basis of the qualitative tests for sugar and diacetic acid in the urine. We have never found it necessary, in patients who have been operated on, to inject insulin intravenously. If the Benedict test for sugar is red, brown or yellow and no diacetic acid is present, 15 units of insulin may be given; but if diacetic acid also is present, 20 units may be administered. If the Benedict test is green, 5 or 10 units of insulin may be given. In general, more insulin may be safely given in the presence of diacetic acid than when it is absent. It is not necessary to follow each dose of insulin with carbohydrate ingestion. We make no effort to give enough carbohydrate after each dose of insulin to utilize all the insulin administered. When the insulin dose is carefully gaged against the sugar and diacetic acid in the urine, we have had no difficulty. We are, however, continuously feeding small quantities of carbohydrates, as will be shown later. These procedures may be carried out every one, two, three or four hours, depending on the urgency of the indications. We have had excellent success working on a three-hour schedule. We are not concerned if the patient does not become immediately sugar-free. Frequently this state is not reached for several days after operation. If the sugar and diacetic acid in the urine are under control and not increasing in amount, we are satisfied to work more conservatively, feeling that rapid changes in the metabolism of the patient are not always desirable. As convalescence progresses, the insulin requirements become less and less and it is often possible to dispense with it entirely.

Blood chemistry does not often play an important role in the postoperative care of a diabetic patient. Occasionally a patient is encountered in whom a knowledge of the blood sugar or the carbon dioxid combining power of the blood results in real benefit to the patient, but such cases are exceptional. We have not found it necessary to make blood sugar and carbon dioxid determinations a part of the post-operative routine. The simple tests for sugar and diacetic acid in the urine have usually supplied all the data necessary for adequate treatment. If urine specimens cannot be obtained, however, the blood offers the only other means of supplying the data necessary for the direction of the treatment.

The amount of fluid required after operation varies a great deal. Probably no patient should receive less than 1,500 c. c. during the first twenty-four hours. More may be given, depending on the degree of acidosis present and the general condition to the patient. We always put six ounces of tap water into the rectum every four to six hours during the first twenty-four hours following opeation. The patients begin to take small amounts of water by mouth just as soon as they ask for it, but great pains are taken to prevent vomiting for this usually produces acidosis. We try to attain a daily fluid intake of from two to three liters as soon as possible after operation. We have not yet found it necessary to use the intravenous route, but subjectoral salt solution has proved of great value.

During the first twenty-four hours after operation, we have found it desirable to administer from 40 to 60 gr. of carbohydrate. In cases showing considerable diacetic acid, it is advisable to give more insulin rather than to give larger amounts of carbohydrate. One pint of oatmeal water gruel containing one-third ounce of levulose supplemented by ten ounces of orange juice, contains 60 gm. of carbohydrate. It is usually not difficult to feed these amounts in teaspoonful increments, but their volume may always be reduced by resorting to glucose solution by rectum. Equal parts of milk and vichy have proved very acceptable to some patients. Such a diet contains little fat and is, therefore, very desirable for the gall-bladder patient. We give no thought to the protein content of the diet at this stage of the treatment. Sometimes the whites of two or three eggs are added to the orange juice, but this is done, not so much for the protein as to make the orange juice bland.

The day following operation, the diet remains almost the same as on the first day; but, thereafter, milk, cream, Uneeda biscuits, butter and eggs are added as rapidly as possible until the patient is taking his full maintenance diet. Meat, bacon, vegetables and cheese are added very conservatively. In our experience it has taken from seven to ten days to reach a maintenance diet composed of the simple, easily digested foodstuffs. Bulk and overloading the stomach should be carefully avoided.

About twenty calories per kilogram of body weight is adequate for the average bed patient. We have found it unnecessary to feed one gm. of protein per kilogram of body weight in order to obtain rapid healing of the wound. As already indicated, the fat in the diet is kept at a low level during the convalescence of gall-bladder cases.

It has been found advisable to give all bed patients exercises at the earliest possible moment to increase their carbohydrate tolerance.

DISCUSSION

B. B. DAVIS, M. D., (Omaha): Mr. Chairman and Gentlemen: I had not intended to discuss this, because I felt what Dr. Jones said has covered the ground very thoroughly. It seems to me all of us will go home with a good deal better, more clear-cut idea of what to do in these cases than we had before. I think we all have appreciated for several years, since insulin came in, that the diabetic problem has been made very much smoother than it was before. I know in my own personal experience I have opearted on quite a number of diabetics with perfectly satisfactory results I would not have dared touch before the days of insulin.

I want to emphasize what the Doctor says in regard to the co-operation between the internist and the surgeon. I think he has well put it to have an internist who is really interested in this class of cases is most essential, because there is a great deal of difference in that regard. In all the cases of diabetics I have had to do with in the last few years, I have had an internist associated with me, and I feel more credit is due to the good work of the internist than that of the surgeon.

I think these cases should be operated with a little more skill and finesse than we use in the ordinary case. We should do our best in all cases, but I want to emphasize that any rough handling or anything in the way of errors in aseptic technique is bound to bring disaster.

I have been very much interested in this paper and wish personally to thank Dr. Jones for being with us.

J. E. SUMMERS, M. D., (Omaha): I should like to repeat, if I could, what Dr. Davis has said. I have had some considerable experience in this line. Only yesterday quite a discussion arose as to what to do in one of these cases — whether to amputate the thigh or below the knee. It has always been my practice when in doubt as to circulation, to amputate the thigh. I have at present one case in which the toes have been amputated with promising results, but you must pick your cases carefully. It depends upon the judgment of the surgeon as to what is best to do. Being in doubt, always amputate the thigh.

EDWIN DAVIS, M. D., (Omaha): I should like to ask what his experience has been with prostatectomy in diabetics.

DANIEL FISKE JONES, M. D., (closing): I would simply say I have not had personal experience. We have had quite a number of prostatectomies in diabetics. I think a prostatectomy should be done in the diabetic just as in any ordinary individual, only I would add, it should be done a little more carefully than in the ordinary individual; because if you have a prostatitis you usually have an infected bladder, and you cannot keep the patient sugar free or comfortable. I should do everything possible to cut off every load he has to carry, and usually a prostate is a considerable load, especially if he gets the bladder infected.

CANCER OF THE STOMACH IN NEBRASKA

JOHN E. SUMMERS, M. D.,
Omaha, Nebraska.
Fellow American Surgical Association, Membre Societe Internationale de Chirurgie, etc.

For some years I have been impressed by the fact that the subject of cancer of the stomach has been lamentably neglected by the profession of Nebraska. Besides observations in my clinic at the Clarkson hospital, a more positive evidence of this neglect can be furnished by the records of the University hospital, drawing patients from every county in the state. During the past ten years there has not been admitted to the surgical service a single case of cancer of the stomach in the earlier periods of its growth, that could be regarded as a fair subject for radical removal with an expectant cure.

According to the records of dependable pathologists twenty-five per cent of cancers of the stomach do not metastasize, death being due to the local destruction of function. It is in this type that permanent cures are to be expected by early, properly done operations. In any early cancer of the stomach, before we know what its type is, we can certainly expect a much prolonged and more comfortable existence if its removal is successfully accomplished at this period. The work of Broders will aid us to estimate approximately the prognosis after an operative success in a case of cancer of the stomach, as it does in other cancers. In patients that come to us so late that on exploration there does not seem to be a reasonable hope of cure, but where it is felt that the growth, however extensive, can be removed, and the line of section and anastomosis done in apparently normal looking tissues so as to allow of the carrying-out of function, and in consequence a general improvement of the patient's health and the bringing about of some happiness, in such an instance, the operation is most certainly to be urged. When, in the judgment of a mature surgeon, it would be too hazardous to attempt the procedure, there are several alternatives. First, when the pylorus is functioning, i. e., when there is no obstruction, there is, of course, nothing to be done. Second, when the pylorus is obstructed and there is only starvation to look forward to, a gastro-jejunostomy should be carried out, and often the anterior kind is preferable; it is much easier and more rapidly performed. I sometimes revert to my earlier experiences and use a Murphy button in carrying out this technique. I have, in a few instances, done a jejunostomy to relieve the suffering, nourish and sustain the strength of very advanced cases, when humanity, and in one particular instance, business reasons, seemed to warrant the procedure, rather than dependance being placed upon opiates, our greatest boon in the management of all kinds of advanced cancer.

Examples: Within the last several weeks I have done two gastro-enterostomies for cancer of the stomach, and one very extensive resection, removing about two-thirds of the stomach; each of these cases is in line with what I have written, and they may be briefly used as types of the kinds of cases of cancer of the stomach too often referred for surgery. All of these were admitted from widely separated sections of Nebraska and were, of course, sent in by physicians, and had been treated for "indigestion" and "stomach trouble", too, for long periods. Example 1, was in pain and starving. Food taken was vomited after a number of hours; scarcely any, even liquid food, would pass the pylorus. An anterior gastro-jejunostomy using a Murphy button, was done, greatly to the relief and comfort of the patient, and he has gone home carrying the button with him. He will die within several months, but an anxious family and grateful patient appreciate what has been done. Example 2, the usual history. On exploration an extensive growth was disclosed, no metastasis. However, the man was so exhausted from vomiting and lack of nourishment, that I did not feel that he would withstand the indicated resection of about one-half of the stomach. So I carried out a posterior gastro-jejunostomy. His improvement since the operation is remarkable, he is eating heartily, no distress, and will leave the hospital tomorrow, two weeks since date of operation, and will return in a week for a proposed resection of his cancerous stomach. Example 3, is a man with the same general kind of cancer of the stomach, but in a much better physical condition than example 2. His pylorus was closed. In this instance I resected about two-thirds of the stomach, closing the duodenum and anastomosing the jejunum to the lower angle of what was left of the resected stomach, a personal modification of the Polya operation, in that the result does not make so much of a stomach of the jejunum as does the Polya, at least the transformation is more gradual. The patient has had neither nausea nor vomiting since the operation, (10) ten days. No one would suspect to look at him as he lies in bed convalescent, that he had ever been operated upon, yet he may die; it is an unfavorable case.

It is of vital importance in a proposed operation upon a patient with gastric carcinoma, as also in cases of gastric or duodenal ulcer, that there should be the closest co-operation between the physician and surgeon. The patient should be gotten into the best possible condition to withstand the ordeal, yet there should be no unnecessary delay. Physicians referring patients for operation upon the stomach, should, whenever possible, be present at the operation, so as to compare the operative findings with the history. This is first-hand knowledge and it is a myth that it can be obtained in any other way than by seeing in the living the pathology that is causing the symptoms of which the patient complains.

Considering its vital importance, too few physicians and surgeons take the pains to worm out of a patient an accurate history in the diagnosis of gastro-intestinal disease. In last month's (August) Nebraska State Medical Journal, there is published an article by Doctor Alvarez upon "The Diagnosis of Gastro-intestinal Disease from a Good History". The doctor is well-known in California, and is a recent valuable acquisition to the Mayo Clinic. A careful reading and note-taking of this paper will be of real value to the student, young or old.

I visited New York a few months ago for the express purpose of witnessing the technique of an exceptionally skillful operator in the surgery of the stomach. All of the operations were done under local anesthesia, and its value cannot be over-estimated. Since this visit, the operations I have done upon the stomach have been carried out under local anesthesia, with most gratifying results both to the patient and myself. There is no question in my mind but that it tends very much to lessen the risk of the procedure, as it positively does in all emergency work, or on severely ill patients, whether done upon the skull, chest, abdomen or the extremities. I have recently carried out under local anaesthesia, without pain or shock to the subject, an amputation of the thigh in one instance, and in another of the leg. In amputations done for diabetic gangrene local anesthesia is strongly indicated. For safe operations upon the stomach the technique should be accurate. There should be positive haemostasis, accurate suturing so as to preclude leakage with its resultant infection and fatality. The method of anastomosis between the resected stomach and the duodenum or jejunum, should be of a kind as to restore healthful function.

If, on exploration of a carcinomatous stomach, it is decided to do a two-stage operation, i. e., a gastro-enterostomy to be followed in a few weeks, two or three, by a resection, the anastomosis opening should be made as far towards the cardia as will admit of the resection being done wide enough away from the involved cancerous portion so as not to encroach upon the anastomosis. Otherwise, it will be necessary to divide the stomach on the cardiac side of the anastomosis, disengage the jejunum from the resected portion, and suture the opening in the jejunum. The remaining technique being done as outlined in example 3.

The operability of patients suffering, from cancer of the stomach is estimated at the Mayo Clinic, in its latest report, as 42%. This estimate is based upon a series of 113 cases. There were 46 partial gastrectomies, 48 explorations, 15 posterior gastro-enterostomies, 2 anterior gastro-enterostomies, and the same number with an entero-anastomosis added.

A study of these statistics is interesting. 60% of all the cases operated upon were found unfit for an attempt at radical cure, proving clearly that the diagnosis of cancer of the stomach is most often made too late for the hope of a cure, or great prolongation of life. It is given out from authoritative sources that cancer of the stomach in its early, safely and hopefully operative stage, can be diagnosed by a well-trained radiologist. The inference is, of course, that in the cancer age too many physicians procrastinate in advising their patients complaining of "indigestion" and "stomach trouble", losing weight in the meantime, to have the right kind of an x-ray examination in addition to consulting someone whose mind is trained to consider such symptoms from their several angles. About one-third of all cancers in the human race are located in the stomach. The mortality, when treated medically, is 100 per cent.

If they can be awakened to an appreciation of this fact, Nebraska physicians may make it possible for her surgeons, properly experienced in the surgery of the stomach, to attain more permanent cures and longer prolongations of life by earlier recognizing the danger signals of this difficult, fatal malady, and at the opportune time referring these patients for operation.

Periodic health examinations are attracting the attention of the public. They are being urged by progressive physicians, life insurance companies, and the educated citizenship. Such examinations would be particularly advantageous in the early recognition of cancer of the stomach, as in the early recognition of this terrible affliction and its prompt surgical treatment, lies the only hope for its sufferers to avoid the 100% fatality when the disease is medically treated.

—426 Bankers Reserve Life Building.

SOME POPULAR FALLACIES ABOUT THE EYES*

S. R. GIFFORD, M. D.,
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One of the most amusing chapters of folk-mythology with which all doctors are familiar is that dealing with pre-natal influences. Given universal credence in the past, the many stories which are said to have proved it absolutely are still believed by many, and no doubt will continue to be believed as long as young married women continue to have mothers and mothers-in-law. I know a very intelligent woman who was deprived of the pleasure of seeing the Siamese twins by her mother's fear that her expected offspring would turn out to be a double monster, and how many expectant mothers can see a cross-eyed man without a secret fear of giving birth to a second Ben Turpin? Aside from inflicting a good deal of mental distress on mothers, these stories seem to do but little harm. A group of legends almost as numerous and interesting has grown up about the eyes, and if I bring these up at this general meeting, it is not entirely out of interest in folk-psychology, but because they have done, all in all, a good deal of harm. The doctor, while he usually does not actually believe these stories, has often not done enough thinking on the subject to actively disbelieve them. Hence, if he does not admit their truth, he seldom takes time to contradict them.

It is the obstetrician, the pediatrician, and most of all the family physician, to whom all momentous questions are submitted, who have the most numerous chances to nip these legends in the bud. For most of them have arisen through the efforts of mothers or grandmothers to find some cause for defects in their offspring. The one real cause for such defects, heredity, is the one cause which it is hardest to get them to admit. Hence we have such fallacies as the following. Every cross-eyed child has had one of the following things happen to him: 1. His mothed saw a cross-eyed man before her delivery. 2. Someone held a bright light before the baby's eyes soon after birth. 3. The baby had measles, whooping-cough or any of a dozen other diseases, and it was only after this that his eyes began to cross. The first two alleged causes are obviously fallacies, and while theoretically an acute infectious disease might occasionally bring out a latent muscular imbalance so as to cause squint, what it usually does is to call a mother's attention to a slight squint previously present, which grows worse from natural causes in the first school days. The harm which is done by these beliefs is that they prevent recognition of the usual cause of squint, a refractive error. If this were recognized and the error corrected as early as possible by glasses, many more cases of squint would be cured without later operations. The same sort of explanations are given for any congenital defect in a child, a fall or a bump on the eye of no significance whatever being often made to account for congenital cataracts, nystagmus, etc.

When diseases of the eye occur in later childhood, similar attempts are made to account for them. In 60% of the cases of interstitial keratitis which I have seen, some of the following causes have been invoked: 1. The child strained his eyes in school or looking at movies. 2. He used a dirty towel in school. 3. Caught cold in the eye. 4. Got something in the eye. When told that the disease is due to hereditary lues, the parents are horrified and often absolutely incredulous. Naturally for the physician, this is a matter of diagnosis, but we are inclined to look for what people tell us is present, and if we looked a little more critically at mother's stories in general, we would be more apt to diagnose at the outset these cases of interstitial keratitis, which are known to happen in some of our best families.

Refractive errors receive, in the vast majority of cases, their explanation as due to eye-strain. This is widely believed by intelligent people and that it is believed by many doctors is shown by the number of cases with simple refractive errors that have been advised by their physician to give up school or any close work. I am quite sure, however, that close work never caused a refractive error. It is true that it may bring on all the symptoms of eye-strain from a refractive error previously unrecognized, and in cases of high myopia it may actually cause the error to increase. Some authorities even believe that close work causes myopia, but I believe the evidence is against them, and that myopia, like all other refractive errors is nearly always the result of heredity. We may not have a highly myopic mother or father, but if we consider the intricate mosaic of heredity bequeathed to us by the forebears of both our parents, we must realize that heredity can never be excluded, and that the shape of our eyes as well as their color, is certainly part of that heredity.

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*Read before annual meeting, Nebraska State Medical Association, Omaba, May 11-13, 1926.

In the treatment of eye diseases, many absurd traditions linger, and it is perhaps here that a decided expression of opinion from the physician can do the most good. Of all the things which are put into the eyes to cure any inflammation, I need only mention the flax-seed, the poultice of chewing tobacco, moderately well chewed, and the collyrium of urine, to state that I have seen recent cases in which each has been used.

The fallacies about glasses are legion. One is often expressed as follows: "Doc told me if I'd a wore them glasses a month longer I'd a been blind". The wrong glasses will cause discomfort, sometimes severe, but will never have any effect on the sight, except while the glasses are worn. A patient for whom I had prescribed a plus 7 cylinder, axis 90, broke a lens and had it replaced by an optician. I found, a year later, that the optician had apparently neutralized his glass correctly, but in a temporary lapse of sanity, had replaced it with the neutralizing glass, minus 7 cylinder, axis 90. The eye had seen nothing much for a year, but when the proper glass was substituted, was as good as ever. It is certainly untruthful, not to say unethical, to tell a patient that the glass fitted by his previous oculist was endangering his sight. It will be a sufficient comment on one's superior skill if the glasses substituted are more successful than the old ones. Another common belief is that the use of any glass "weakens the eyes". Naturally glasses should not be worn unless a refractive error exists sufficient to cause discomfort or reduce vision, and many cases who carry a fairly high refractive error with no symptoms do not need glasses. When glasses are needed, however, they should, if properly prescribed, place the eyes in a condition approximating that of the normal eye. The only sense in which they weaken the eyes is that they accustom the wearer to a degree of vision which he did not possess before and may be unable to comfortably dispense with after using his glasses for a while. An equally mistaken idea is that glasses will cure any trouble with the eyes. Children with nervous habits such as blinking are often brought in for glasses and their parents may be disappointed at having to take other measures. Patients with trachoma often think that all they need is glasses.

When a refractive error has been detected and corrected by glasses, one out of every three mothers will ask whether her child must be taken out of school. This is due, as before stated, to the belief that close work is the cause of the condition, and to a fear that continual close work will ruin the child's eyes and make him blind. Doctors apparently often acquiesce in this fear, or even suggest it themselves. In the vast majority of cases, this is entirely wrong and nothing could be worse than to take most children out of school for a refractive error. Usually the vision with correction is good enough to allow of a normal education and any kind of career in life. If it is too poor for this, the child should at least be encouraged to get as far in school as his vision will permit, without being handicapped by a perfectly groundless fear of making himself blind.

In the case of an inflamed eye, there is a very general idea that it must be shielded as much as possible from the deleterious effects of light, and I believe doctors have often been guilty of encouraging this fallacy. Most of us remember the horrible experience of Jo in "Little Women" who "took cold in her eyes" and was confined by her doctor for weeks in the Stygian darkness of a closed room. Memoirs of famous men and women, of which I remember the cases of Katherine the Great and Anna Howard Shaw particularly, recall such experiences with the vividness which only exceeding unpleasantness could give, and patients often tell of close escapes from blindness in youth when they were forced to undergo this; patients who show no signs of ever having had anything worse than conjunctivitis. I know of no eye disease for which confinement in a darkened room is either necessary or beneficial. We sometimes use a double bandage or shield, to keep both eyes motionless, as after an accident involving danger of retinal detachment or after cataract operation, but it is not the light of which we are afraid. The chief result of such confinement is to cause a photophobia, a fear of light which, in the case of a nervous person, especially a child, may take months or even years to overcome. The same may be said of colored glasses, which, while comforting in the early stages of inflammation, should be discarded as early as possible, before photophobia becomes confirmed.

The fear of cycloplegic "drops" is based on the propaganda of optometrists who are prevented by law from using them, and on a very few real cases of glaucoma following their use. In the old days of atropine, taking drops whose effect lasted two weeks was something not to be considered lightly. The effect of homatropine, which is now used almost universally, lasts only twenty-four hours, and if eserine is used after the test, the danger of glaucoma is practically nil. I have only seen one case, in a man over forty, and in this, the tension promptly subsided when eserine was pushed, the vision suffering no impairment.

Popular diagnosis of eye diseases forms an interesting subject too large to be entered upon here, except to say that such diagnosis often influences the physician's opinion, apparently. Any visible opacity in the eye, usually in the cornea is, to the layman, a cataract. A pterygium, especially, is always a cataract, a corneal scar usually. The doctor, while he only seldom agrees with this, more often makes the mistake of attributing any gradual painless loss of vision in an elderly person to cataract. This may have fatal results for vision in cases when chronic simple glaucoma is really present, as it often is with this symptom alone. An opacity in the lens far enough advanced to interfere with vision can nearly always be seen with a good light, and for this the best light is that of an ordinary electric globe focussed into the eye by any convex lens.

To sum up, physicians may do much to promote the cause of truth and their patient's welfare by insisting on the following facts: 1. Cross-eyes are usually due to a refractive error which should be corrected. 2. Refractive errors are due to heredity, not eye-strain, will not cause blindness, and are not a cause for taking a child out of school. Close work seldom ruins the eyes, if the error is properly corrected. 3. Glasses do not weaken the eyes, nor do they cure every eye-disease. Wrong glasses do not make people blind. 4. Confinement in a dark room is never necessary in the treatment of eye diseases. 5. Gradual loss of vision in the elderly is not always due to cataract, and where it occurs, an exact diagnosis should be made.

DISCUSSION

FLOYD CLARKE, M. D., (Omaha): I have been interested in this paper especially on account of measles. We have seen quite a few measles in Omaha in the last three or four months, and, of course, there is the popular idea that the baby's eyes should be absolutely protected from light. The mother puts the baby in a dark room with the curtains down; and it seems to me in a way, from a practical standpoint, it is advisable, because we all know that following measles there is quite severe conjunctivitis, and if the youngster is dreading light, which he does with measles, it does not seem hardly right you should have very much light on that youngster's eyes. However, I do not think we believe in the absolute darkness which they had in "Little Women", but instead of telling the parents that no light is necessary, or that a great deal of light is necessary, it seems to me a middle point should be pursued — that some light should be allowed, which is not strong, and yet not absolute darkness, which is apparently the popular idea.

I should like to ask Dr. Gifford whether he does not think obliteration of some light is necessary, especially in measles?

S. R. GIFFORD, M. D., (closing): I think a good many people might disagree with me on this. There is perhaps room for argument. As a matter of fact, the child who does have inflammation will protect his own eyes by keeping them shut. I do not believe that light itself, unless we talk about high degrees of light such as from these lamps in moving pictures, ever causes conjunctivitis. The ordinary light in a room where a child would be confined would never cause conjunctivitis.

Of course, the mothers are worried. I would not advise you to tell the mothers to put the children in the window and expose their eyes to light; but I think if their eyes seem to be inflamed, it would be better to get them colored glasses to wear during the first few days of convalescence, and keep them otherwise in light, because it is good for their general condition. I think the general therapeutic effect of light is beneficial rather than anything else. It is also bad for a child to keep his eyes closed too much in any condition where there is a conjunctivitis, where bacteria may be present. I think a mild antiseptic wash, such as a mild solution of boric acid, is good. If the children complain, they can use colored glasses, but I do not think it is necessary to keep them in the dark for any of these conditions.

NO SUBSTITUTE FOR COUNTRY DOCTOR

Is the old-fashioned family doctor about to disappear?

Many say yes. Dr. William Allen Pusey, son of a country doctor, well known Chicago specialist in skin disorders, former president of the American Medical Association and medical writer of note, says no.

"The family doctor is a necessary man for whom we have no substitute," says Dr. Pusey, "and one, therefore, whom the people will see to it that they have.

"There are many attractions to his life which we are now overlooking, but which, being essential, will come back into recognition and again influence young men to go into this sort of practice.

"The family doctor, the country doctor in particular, we will admit, has led a hard life; but hardships in life, of the sort that we have in mind when we speak of the hardships of a successful vocation, are not important objections. For the right sort of man, they furnish a stimulus that is attractive.

"There are many compensations to the country doctor besides the stimulation of a sort of adventure and the satisfaction of duty well done. The eagerness to which the doctor's coming is looked forward to, the satisfaction at his arrival, the relief he can often give in desperate situations when he is the sole reliance—there is nothing in the life of the specialist that takes the place of these things.

"If the family doctor should disappear, one of the most useful and satisfying of man's vocations would be lost."

CARCINOMA OF THE RECTO-SIGMOID, WITH PERFORATION AND ABSCESS FORMATION IN A MAN OF TWENTY-ONE YEARS.*

J. M. MAYHEW, M. D., F. A. C. P.; CLAYTON F. ANDREWS, M. D., F. A. C. S.; AND GEORGE W. COVEY, M. A., M. D.,
Lincoln, Nebraska.

We wish to present the records in this case because of several unusual features and because of the interesting diagnostic problems with which we were confronted; these features are: (1) Carcinoma of sigmoid in a man of twenty-one years. (2) Perforation of lesion with abscess formation. (3) The extensive metastasis of the lesion. (4) The negative rectal and x-ray examination up until the last month. (5) The generalized and enormous number of adhesions about the intestines throughout the entire abdomen. (6) The very close resemblance of the metastatic nodules to tuberculosis.

The following is an abstract of the medical, surgical and pathological reports in this case:

R. B., Post Office Clerk. Age 21, seen by me November 11th, 1925.

The first examination made by me was January, 1915. At that time he was 11 years of age, had been in bed for three days, was short of breath and exhibited some oedema of the legs and ankles. His heart was dilated to the left, was irregular and showed a harsh systolic murmur which was transmitted to the axilla. The urine showed albumen but no casts. He ran a temperature for three weeks, then symptoms subsided and at the end of two months he was up and at school. Tonsillectomy was advised at this time but was not performed for two years.

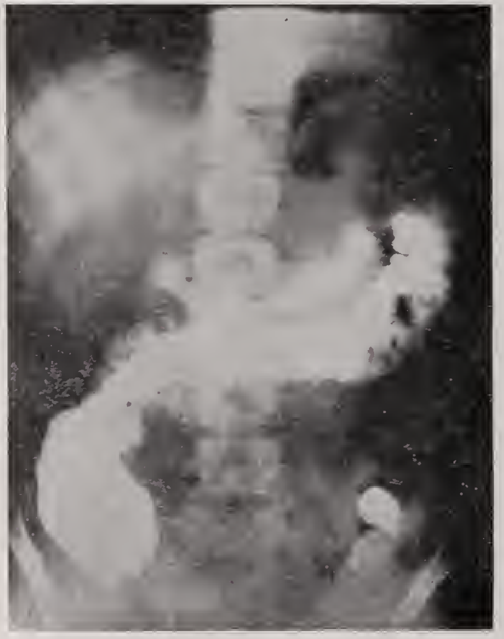

Fig. A. Six hour barium meal per orem. No defect shown in ascending or transverse colon.

Since this original sickness I saw him twice a year up to the present time. His heart has not shown any signs of decompensation and he has been carrying his load easily.

November 11th he appeared at the office complaining of a pain in the left iliac fossa. Examination was negative but he was advised to have x-rays of the gastro-intestinal tract. A rectal examination revealed nothing and fluoroscopic examination gave no evidence of sigmoid pathology. He had no temperature and blood count was 8,200 with a normal differential. The urine was negative.

The x-ray showed the stomach normal in outline. It emptied in six hours at which time the first portion of the colon was filled. In 24 hours the colon was practically free, having emptied the barium meal that morning without physic. A barium enema showed no evidence of mass. There was some slight tenderness and resistance over the right side. He was not constipated, but had a normal bowel movement every day.

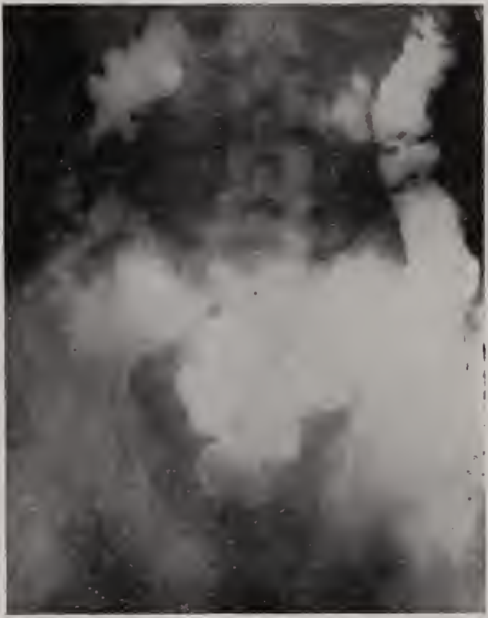

Fig. B. Twenty hours after ingestion of barium meal. Note no defect or abnormal filling in sigmoid or rectum.

He returned November 30th stating that he had been having "chills and fever" for two or three days. He had some nausea and had vomited once. He had passed some blood and had had a few watery stools. Tenderness was great in the left pelvis and a mass was felt through the abdomen. He was sent to the Lincoln General Hospital on the surgical service of Dr. Clayton F. Andrews.

—J. M. Mayhew, M. D.

R. B., No. 1452. Admitted Dec. 1, 1925. Age 21, white, male, single, post office clerk.

Chief complaint: Pain and tenderness in left lower abdomen. Three months ago began to have pain in the lower left quadrant of the abdomen immediately after meals together with gas and bloating until bowel movement—often took castor oil for relief, some nausea at times, though he vomited but once, no hematuresis. Stools often watery and mixed with bright red blood at times. Has lost weight in the last three months, but does not know how much. Says a mass appeared in the left pelvis at times, and disappeared after defecation. In past 2 or 4 weeks there has been some pain after urination, but no other urinary symptoms. No cough—slight dyspnea at times for years (has had systolic murmur for a long time) has had much tenderness in left pelvis and some fever. There has been a tender place in the left pelvis for about four weeks, which is gradually enlarging and becoming more tender.

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*From the Medical and Surgical Departments of the Lincoln General Hospital, Lincoln, Nebraska.

Previous medical history: Influenza at the age of 13—was in bed several weeks with this. Has known for years that he has had a heart murmur. Tonsillectomy. 1917.

Family history: Negative.

Past examination: Skin pale, tonsils out, teeth fair, neck negative. Heart plus 3 cm to the left with cardiac impulse sixth interspace 3 cm to the left of mid-clavicular line very forceful—no thrill. Constant loud systolic murmurs over the entire precordium and transmitted to the left axilla. Abdomen shows round smooth tender fixed mass about ten centimeters in diameter in the left pelvis, non-fluctuating, marked bilateral inguinal adenopathy.

Genitalia: Negative.

Rectal—large and tender, firm, fixed mass in the left pelvis, examination painful.

Urine turbid, alkaline, 1010, epithelial and pus cells.

W. B. C., 20,200—Polys 89%. Temperature 102.6. Pulse 140. Respiration 26.

R. B. C., 4,760,000.

X-ray of the entire gastrointestinal tract including recto-sigmoid negative.

Exploration done Dec. 2, 1925—local anaesthesia. Large abscess in the left pelvis containing about six ounces of foul pus, omentum adherent to abscess and surrounding tissues; abscess attached to the bladder, small intestines, and recto-sigmoid. Because of pus, no exploring was done; abscess drained and wound partially closed. Note made to x-ray the spine for possible Potts' Disease. This was done a few days later and spine and pelvis reported negative.

Following the operation temperature and pulse fell to practically normal within twenty-four hours and the patient said he felt better than at any time in the past three months. Culture of pus showed staphylococcus albus and a Gram-negative bacillus probably B. Coli. There was much purulent drainage for about two weeks, after which there was gradual diminuition in the amount so that the wound was practically healed by Dec. 28; the man was up and walking; had gained weight; appetite good, and bowel movement daily.

Jan. 2, 1926 began to have cramps in the left side of the abdomen and quite a large amount of red blood and pus in the stools. There was a rise in temperature to 100, and the pulse to 120. This condition persisted and on Jan. 5, a second gastrointestinal x-ray study was made. The stomach and duodenum were negative; after twenty-four hours the colon was large and appeared dilated; at the end of thirty-one hours there was practically no change in the character of the colonic shadow; the same condition persisted after forty-eight hours. An opaque enema filled the sigmoid which was large and dilated. It was impossible to visualize the descending portion of the pelvic colon, and Dr. Roscoe L. Smith was of the opinion that this was due to organic pathology constricting some portion of the descending colon. Daily colonic lavages were given with a decrease in the amount of blood and pus, and some general improvement for a few days. On Jan. 20, severe cramps appeared in the left side of the abdomen with marked increase in the blood and pus in the stools, and a recurrent tender, firm, fixed mass again formed in the left side of pelvis. WBC, 12,500—Polys, 80%, R. B. C., 3,888,000.

Exploration advised and was performed the next day, January 21, under ethylene anaesthesia. The old scar was excised; omentum and intestines adherent to the peritoneum; the mass is made up of omentum, large and small intestine, with enormous thickening of the walls of the recto-sigmoid; the entire mass is attached to the bladder. There is a perforation through this indurated area of the sigmoid, about 2 centimeters in diameter, allowing the free escape of the colonic contents.

Because of the enormous induration it was impossible to suture the perforation; a No. 30 rubber tube was placed in the opening, drainage inserted in the pelvis and with great difficulty because of adhesions, a colostomy was done above the perforation in the sigmoid.

The intestines were everywhere injected, red, and largely adherent to the adjacent loops. The posterior parietal peritoneum, the mesentery, and omentum were studded with pearly grey nodules, and there was generalized enlargement of the abdominal lymph nodes. A tentative diagnosis of intestinal tuberculosis with perforation, was made and a hopeless prognosis given. Following this procedure the man was in surprisingly good condition; the colostomy opening was established by cauter on the fourth day, in bed. For 3 days after this there was still more improvement until about 2 p. m. of the 8th day, Jan. 29, when severe cramping abdominal pains appeared, there was slight distention, and all drainage of the colostomy ceased. A diagnosis of acute intestinal obstruction above the colostomy was made. Because of the extremely poor condition of the patient and because of the extensive nature of the abdominal involvement no further operation was deemed advisable and the condition treated with hot stupes, pituitrin, etc. These measures were, of course, ineffective and the man expired in about twenty-four hours.

From the onset, this man presented an extremely interesting diagnostic problem. In the presence of a tender, smooth, left-sided pelvic mass in a young male of 21 years, our diagnosis seemed most likely to be one of three lesions; diverticulitis, tuberculosis, or Pott's disease of the spine; also to be considered, though less probable, were a left-sided appendiceal abscess, Hodgkins disease, lymphosarcoma, carcinoma of the intestine, gumma, or possibly a low perinephritic abscess. In our studies of the case we eliminated in our minds, everything but tuberculosis, diverticulitis, and possibly carcinoma.

Our findings at the time of the first operation threw no light upon the true diagnosis for the reason that upon opening the peritoneum, we encountered a large abscess of the left side of the pelvis, and it was deemed inadvisable to do more than establish drainage at this time. His immediate improvement after this procedure gave us reason to hope, that in draining the abscess, we had overcome his trouble, and that it consisted in some benign lesion, probably a diverticulum of the sigmoid.

However, on January 2nd, about 30 days after the drainage, he began to pass large amounts of blood and pus in the stools, and to have attacks of severe cramps in the left side of the abdomen. A re-ray of the gastrointestinal was made at this time which revealed a constricting lesion of the descending colon. The symptoms grew more pronounced and a second operation was done under ethylene anaesthesia on January 21st, 1925. Our findings at this time have been enumerated above, and because of these findings, we felt certain that we were dealing with a generalized abdominal tuberculosis. This same conclusion was held at the time of the autopsy, and only the microscopical study of the lesion of the sigmoid, told us the real truth.

—Clayton F. Andrews, M. D.

Protocol of Postmortem: Time of Autopsy: January 30, 1926, 5:15 p. m.

Peritoneal Cavity: The small intestine is injected. The loops of the upper portion are markedly distended. There is a little free fluid in the belly cavity, of a clear amber character. The omentum is spread over the intestines and adherent from the mid-line across the left lower quadrant. The omentum is spattered with greyish bodies from pin-point size to two or three millimeters or more, some perhaps as large as 5 m. m. At first these appear to be fat, but they are firm, hard. The appendix is over the brim of the pelvis in an inflammatory mass. The mesenteric lymph nodes are apparently hyperplastic and in the mesentery there are scattered a number of nodules similar to those described in the omentum. The diaphragm reaches the fifth rib on the right and the fifth interspace on the left.

Pleural cavities: The left contains no increase in fluid, no adhesions. The right is similar to the left.

Pericardial cavity: Contains about an ounce of clear, amber fluid, shows no thickened areas or other evidences of pathology.

Lungs: Left. Of normal appearance, air-containing throughout. It shows a little tendency to collapse—atelectasis. The cut surface is of normal color. There is no evident pathology. Peribronchial lymph nodes are apparently not hyperplastic and contain no evident infiltration. Right. Of normal size, shape and consistency except that the lower portion of the lower lobe is a trifle firm. It has the same tendency to atelectasis as the remainder of the lung. Beneath the pleura posteriorly about one inch from the base, is a hard, apparently calcified nodule the size of a B. B. shot. The cut surface of the lower lobe is deep red in color. It contains a relatively large quantity of bloody fluid. There is no evident infiltration about the bronchioles. The peribronchial lymph nodes are small, dark colored, show no caseation, calcification or other evidence of disease.

Heart: Of about normal size. Near the apex in the anterior wall of the left ventricle is an area about 2 c. m. long by 1 c. m. wide, that is grey or white in color, to which there are some short tags of fibrous material attached. There is a thickened area in the epicardium called soldier's spot. There are other thickened areas in the epicardium. The right auricle shows no particular abnormalities. The tricuspid valves are normal in appearance. The circumference is 13 c. m. The pulmonary artery and its valve are apparently normal. The left auricle shows no gross abnormality. The mitral valve admits the tips of two fingers. The circumference of the mitral valve is 12 c. m. The cavity of the left ventricle is about normal in size and the wall is 1½ c. m. thick. The aortic valve and root of the aorta and mouths of the coronary arteries, appear normal. The arteries themselves are patent, thin walled and of normal appearance.

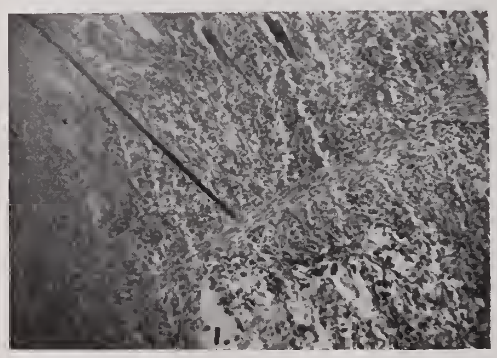


Fig. 1. Photomicrograph of section of colon (Sigmoid) at our edge of annular mass. Shows muscularis mucosae (at tip of pointer). Remnants of intestinal glands are seen above but almost entirely replaced by carcinoma. Strands of carcinoma cells are seen below the muscularis.

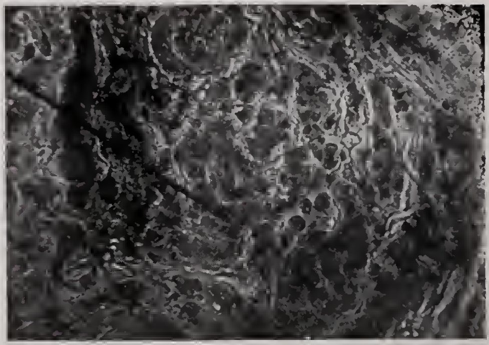


Fig. 2. High power photomicrograph taken from section shown in Fig. 1, to show type of cells.

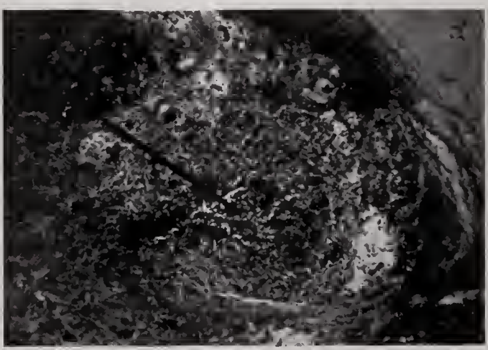


Fig. 3. Photomicrograph showing carcinomatous infiltration of retroperitoneal lymph node.

Gastro-intestinal tract: The stomach is immensely dilated, filled with dirty, brownish fluid. The duodenum is quite markedly dilated and its peritoneal surface is covered with the same nodules that we have described previously. The stomach contents also contain oil (appearance of castor oil). About 36 inches from the beginning of the jejunum a loop of the small gut is caught in an inflammatory mass and is the point at which an acute volvulus has occurred. The farther down one goes on the small intestine the more involved it is with the small, hard masses distinguished in the omentum. Loop after loop of the small intestine is caught in the inflammatory process of the previous operative area of the left lower abdomen. The adhesions are more or less recent and easily disturbed. The farther down one goes on the small intestine the more markedly nodular and granular it feels from the peritoneal coat. The appendix is very markedly involved near the tip with large, firm, greyish nodules. The greatest amount of disease in the small intestine is in the ileum. The nodules here are very much larger and firmer, showing that apparently the original site of infection was in the right lower quadrant of the belly. In the trough lateral to the cecum and ascending colon the peritoneum is very markedly involved with tubercles. The ascending colon itself, that is, the peritoneal coat and its mesentery, are markedly tubercular. The transverse colon is involved to a lesser extent. It is contracted. The sigmoid is attached in the operative wound at which point there is a colostomy opening. Below the colostomy opening the sigmoid is thickened, perforated. Upon opening the sigmoid it is found that there is at the point of perforation a dense, constricting mass extending through a distance of about two inches of the gut wall and completely encircling it. This is deep red in color, the surface is elevated above the mucous membrane of the bowel. It has the appearance of new-growth.

Bladder: Small. The wall is thick.

Liver: Of about normal size. It is very soft. The color is approximately normal. The cut surface is reddish brown in color and the markings are of normal appearance except that the centers of the lobules are a trifle large and deeper colored than usual. It contains no nodules. The gall bladder is normal in appearance.

Spleen: The spleen is small. It is lobulated. It is soft, the capsule is bluish grey. The cut surface is mottled. The trabeculae are distinct. It has an appearance as if the Malpighian bodies were very large striations in the cortex. The surface glistens. The capsule strips readily. Stellate vessels are visible and very distinct.

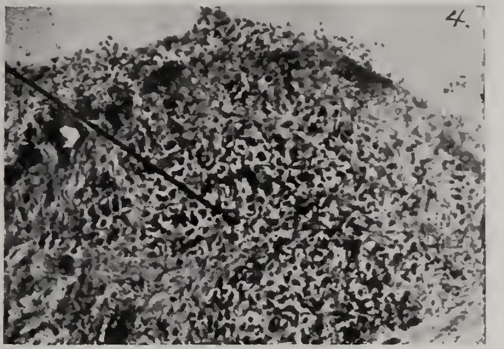


Fig. 4 Photomicrograph of section through one of the sub-peritoneal nodules showing them to be carcinomatous.

Kidneys: Left. About normal in size. It is soft. The cut surface is light red in color, very distinct The surface is smooth. The right kidney is similar in size and shape to the left. Upon dividing the ureter a quantity of cloudy, pus-like urine flows out. The cut surface has a similar appearance, to the left the capsule strips readily and is very much like the opposite kidney.

Adrenals: On the right, not grossly abnormal. That on the left is apparently normal.

Pancreas: Normal in size, shape and consistency. The cut surface is normal in appearance.

Anatomical lesions: There is emaciation. Operative colostomy. Moderate dilatation of the heart with relative mitral insufficiency. Tuberculosis of the peritoneal cavity, particularly of the lower half. Marked involvement of the sigmoid with perforation. Secondary, septic peritonitis. Acute volvulus and obstruction to the small bowel. Parenchymatous degeneration of the liver and kidneys. Acute pyelitis of the left kidney. Chronic cystitis.

Probable cause of death: Obstruction of the small bowel due to volvulus.

Microscopic examination of the tissues removed at post-mortem:

Colon: Section of the annular mass constricting the sigmoid colon reveals the structure of a new growth which may be designated as an adenocarcinoma.

Retroperitoneal lymph node: Shows numerous areas of infiltration with neoplastic tissue of the same general type as seen in the sigmoid.

Nodule described in the protocol as "Tubercular": There is no evidence microscopically of the granuloma characteristic of tuberculosis. These nodules are neoplastic and of the same type as seen in the colon and lymph nodes.

—George W. Covey, M. D., Pathologist.

SOME ESSENTIAL ELEMENTS OF FOOD

HOMER DAVIS, M. D.,
Genoa, Nebraska

The rapid evolution of the human mind during the past half century has created marked changes upon the environment of the human body. These changes are not well understood except by scientists. The laity have not yet made the proper adjustment to many of the advances of science particularly in relation to the proper selection of food.

The food problem of the human race has always been of great importance. There probably has never been another factor of human existence more important. In the early history of mankind the food problem was a question principally of obtaining a sufficient quantity to properly sustain life and energy. With the evolution of progress, human intelligence has created an abundance of food. The problem then today is not a question of obtaining food, but rather, a question of the proper selection.

The physician's duty to his community has not all been performed when he has attended the sick and has done his best to relieve human suffering. One of the duties of the medical profession is to teach preventive medicine. Your attention is called today to a discussion of the application of the discovery of certain essential food elements to this great question of preventive medicine.

The consideration of calories needed for the food intake of the human body is well understood by the physician. The necessity for the balanced ration — proteins, carbohydrates, and minerals is also well understood. In this country the above balances are well taken care of by the average citizen, as foods of all kinds are plentiful.

It is only occasionally that advice is sought of the physician for the above food problems, the usual advice being given for the correction of obesity. In some pathological conditions however, it is very necessary that the physician understand both the caloric value of food and the carbohydrate and protein problem.

The last few years has brought out some newer considerations of food values that are found by research to be of great importance to all of us. It has been known for years that cod liver oil and sunshine are a specific for rickets. The causes of beriberi, pellagra, and scurvy have been known for some time to be a lack of certain food elements. The cause of certain other diseases not classified now as nutritional disorders can be traced to a lack of these same food elements in the diet. These essential food elements have been named vitamins. We now know that any well balance ration is not complete unless the vitamin content is well considered.

We then have three important factors necessary in the selection of a well balanced ration —the caloric intake; the balance of the protein, carbohydrate and mineral intake; and the balance of the vitamin content of all food.

A survey of the vitamin shows that although but three have been generally recognized—"A", "B" and "C", we now know of five. Vitamin "A" has been split up into two because of different physiological functions and is now referred to as "A" and "D". The vitamin X has been added to the list as "E". The future may see further division of vitamin "B".

A brief summary of the exhaustive data on these five vitamins follows:

Vitamin "A", the Anti-Ophthalmic Vitamin, is chiefly associated with fats, particularly certain animal fats. Cod liver oil is the richest known source of this vitamin and has been reported to contain 250 times as much as butter fat. Other fats rich in this vitamin are milk fat, and egg yolk fat. Butter, cream and cheese made from whole milk are very good sources of this vitamin. The liver, heart and kidneys of animals are storehouses for this vitamin and are, therefore, good sources. Leafy green fresh vegetables are excellent sources. Spinach, lettuce and cabbage deserve mention. Tomatoes contain it in abundance. Young animals whose food contains no vitamin "A" stop growing and lose weight. Their vitality becomes lowered and they are less able to resist infection and disease. In both animals and man a characteristic affliction of the eyes results—ophthalmia or xerophthalmia. The administration of vitamin "A" promptly cures this disease. The subcutaneous injection of vitamin "A" is a new procedure where this vitamin is needed and where the absorptive capacity of the intestine is impaired.

Vitamin "B", the Anti-Neuritic or Anti-Beriberi Vitamin, is the most widely distributed of all the vitamins. It is abundant in all green plant tissues, roots and tubers, and especially so in tomatoes. Cereals and seeds are rich in it, the germ of the seed being especially so. Yeast, particularly brewer's yeast and wheat germ are the standard sources in experimental work. Most fruit and nuts are well supplied with it. Meat contains it to some extent except that the flesh of chicken, turkey, duck and guinea fowls were found deficient. Beriberi is most commonly found among those chiefly living on polished rice.

Dr. Saunders of St. Louis claims to have discovered that the lack of vitamin "B" in food causes children to be nervous and irritable. They do not play and are restless, or do not sleep naturally and they complain of leg pains. His cure is bran water—one quart of bran soaked in cold water 12 hours. Heat to 140 degrees and strain. When cool flavor with fruit juice. This is all the fluid the child gets to drink for several days and the symptoms soon disappear. He believes that the removal of the bran and germ of wheat as is done in the manufacture of our Vitamin "B" is necessary for the maintenance of life and health of all ages. Lack of it results in loss of appetite and arrest of growth, followed by functional disorders.

Vitamin "C," the Anti-Scorbutic Vitamin.

The best sources of this vitamin are lemons, oranges, tomatoes, cabbage, lettuce, spinach, green peas and beans, and turnips. Most green vegetables, fruits, roots and tubers contain it in varying quantities. Grain and seeds contain little if any unless sprouted. Oysters contain it. Vitamin "C" is a variable quantity in milk and this quantity depends upon whether the cows are pasture fed or stall fed. Lack of Vitamin "C" in the diet causes scurvy.

The average American diet is well supplied with this vitamin and, therefore, a deficiency is only occasionally met with. The Arctic explorer and the medical officer in the army and navy must keep this vitamin in mind in the make up of his ration.

Vitamin "D", The Anti-Rachitic Vitamin like vitamin "A" is fat soluble and is found in greatest concentration in cod liver oil. It is contained to some extent in egg yolk, milk and cocoanut oil. Other vegetable oils such as cottonseed oil, olive oil and linseed oil are reported having none. Spinach and lettuce excellent sources of vitamin "A" show no antirachitic properties. Vitamin "D" seems to control the utilization by the animal organism of lime and phosphorus lack of which produces rickets. According to Hess, rickets is the most common nutritional disease occurring among children of the temperate zone.

Animals on a diet containing no vitamin "D" will quickly develop rickets when kept in the dark. but when exposed to direct sunlight will not do so. On the other hand if cod liver oil be added to the rickets producing diet, normal development will follow, even in absolute darkness. If the vegetable oils not naturally possessed of antirachitic properties and also lettuce and spinach are irradiated with ultra violet rays they become highly active. Winter is naturally a season of lowered resistance, for in winter less sunlight reaches us because of our heavy dark clothing and our tendency to remain indoors where our window panes filter out all ultra violet rays.

Vitamin "E," The Anti-Sterility Vitamin is called by some vitamin "X" owing to the small amount of research work done upon it. Lack of this vitamin in food given to rats produces complete sterility. It is found to be the most abundant in the wheat germ.

The diet that excludes vitamin foods is a dangerous one regardless of the reasons for its adoption.

It has greatly impressed me that the American habit of eating certain foods containing no vitamins must be changed if we are to maintain our physical standard and keep our place among the people of the earth.

A celebrated English doctor makes the statement that if the people would form the habit of eating food that contains a balance of the vitamins, many of the diseases such as cancer, tuberculosis, peptic ulcer, appendicitis, gall bladder diseases and the whole list of infections would be almost eliminated.

The American habit of eating white bread which contains no vitamin should be changed to a habit of eating whole wheat bread. All cereals used as food should be prepared only in a way that uses the whole grain, both for bulk and for the vitamin content.

A liberal amount of raw fruits and vegetables should be a daily diet as over cooking destroys a certain amount of the vitamin content of food. Milk and milk products being rich in vitamins should be used liberally by all and especially children.

The prosperity of the American people makes practically all of them selectors of their own foods. They select by the sense of taste and by habit. Most people seem to like sweet, hence the large consumption of sugar. Sugar is a carbohydrate food, rich in calories, but contains no vitamins. Sugar, therefore, should be used sparingly and only with foods rich in vitamins. The tomato is rich in all vitamins and its use should be encouraged.

CONCLUSIONS

1. The vitamin content of food eaten by the average American family is not given enough serious consideration.
2. A well balanced vitamin ration if generally adopted by the people would greatly improve health conditions.
3. The use of white flour products which includes the almost universal use of white bread in the homes and public eating places should be corrected as it contains no vitamins.
4. We as physicians should give the vitamin balance more serious consideration in prescribing diets.

CLINICAL SIGNS OF RICKETS IN INFANCY—A PLEA FOR EARLY DIAGNOSIS

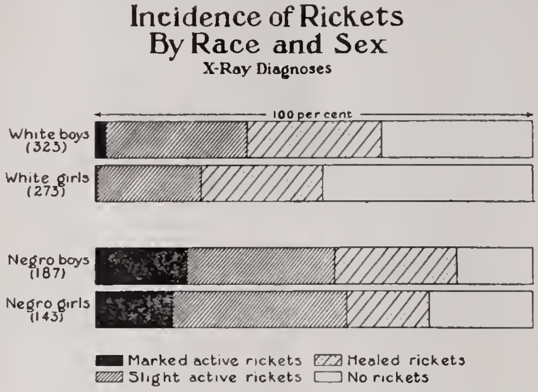
FLOYD CLARKE, M. D.
Omaha, Nebraska.

The impression is prevalent that rickets is not very common in Nebraska. My own observations at the State Fair at Lincoln and at some of the County Fairs in our State and in my practice, is that rickets is very common. In at least one district which I have in mind it is almost endemic.

Modern literature is replete with articles pertaining to rickets and a great deal of experimental research has been done, looking toward the solution of its cause. Let us approach our subject from the standpoint of the physician who is doing every day work among infants and children and endeavor to point out those facts which have been proven to be helpful.

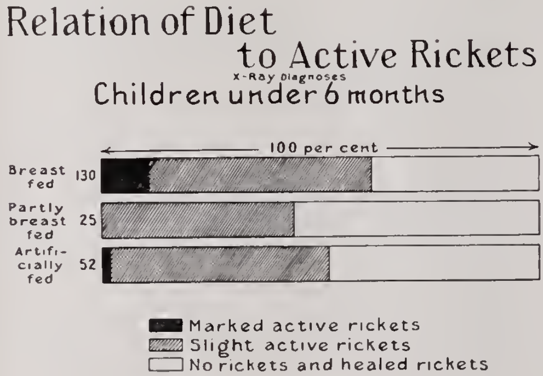
INCIDENCE

Rickets is more prevalent in the winter months. It increases month by month until April, being more common in March and April than in December and January. Its chief incidence is in the first six months of life; however, its clinical manifestations probably do not often occur until after six months. What per cent of children have rickets? Its universal occurrence in the Italian and Negro in this country and its comparative rarity in certain portions of China are well known. A recent investigation in New Haven notes its prevalence in 85% of infants examined. John Thompson believes that more than 50% of all children in Edinburg, Glasgow, Manchester, and London, show unmistakable signs of rickets. Hess is of the opinion that this percentage is correct for New York City and other large American cities and that if careful clinical search were made and chemical examinations of the blood undertaken, the percentage would be much higher.



Children's Bureau, U.S. Department of Labor

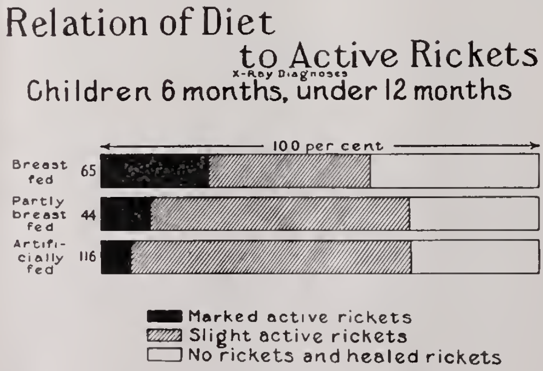
Fig. 1.



Children's Bureau U.S. Department of Labor

Fig. 2.

Rickets occurs most commonly in the well nourished infant and is nearly as common in the breast fed as in the bottle fed baby. The rate of growth has a distinct bearing on the incidence of rickets. This fact is best examplified in the premature infant; usually its growth is quite rapid and all premature babies are unmistakably rachitic.



Children's Bureau, U.S. Department of Labor

Fig. 3.

The prevalence of rickets seems to be more marked in certain years. For instance, I believe I saw more rickets during the winter of 1924 and spring of 1925 than has been my experience in previous years. I have no satisfactory explanation to offer for this.

CAUSE

The real cause of rickets is not known. We do know, however, that when there is deficiency of calcium and phosphorous in the blood and when the quotient of the two multiplied together expressed in mg. per 100 cc. of blood, is less than 40, rickets is present. Probably the most common reduction occurs in the phosphorous content, the calcium being most markedly reduced when tetany is a symptom. The theories advanced as to the cause of rickets have been very interesting. Erdheim believed that the disease was caused by a derangement of the parathyroid glands; Findlay, of Glasgow, proved in many ways that rickets was produced by lack of exercise and believed that this was the prime factor in its development. More recently, however, he has to some extent apparently abandoned this view and has intimated that there was primarily in rickets a disease of the intestine. He does not presume to state whether this intestinal disease be infectious in origin or not, but suggests the probability of its infectious nature.

Investigators have been interested in endeavoring to isolate the particular vitamin, the lack of which may cause rickets. Definite progress has been made along this line, but the chemical unit which goes to make up the anti-rachitic vitamin still eludes. Many of the older writers have been content to assign the cause of rickets to a combination of bad air, unhygienic surroundings, lack of sunshine, insufficient exercise, heredity, and improper food. The final solution, however, will probably prove that there is only one cause explaining the whole train of symptoms produced. This thought is quite obvious when we consider the fact that other diseases with no more clinical results than rickets are explained by a single cause.

SYMPTOMS

Late rickets with its bowlegs, mal-development of the ribs, and various boney deformities, is easy to recognize, but if we are to accomplish anything in prevention, rickets must be recognized much earlier. Can a clinician having his eyes, his sense of touch, and his judgment, and experience as a physician, recognize the disease early?

First it is necessary to have in mind the fact that rickets has its greatest incidence in March and April, increasing from December on. Beading of the ribs is a most valuable early sign. Unfortunately there exists much difference of opinion among competent observers as to what constitutes true rachitic beading and the normal, rather soft cartaliginous feel of the costochondral junction. Also, rachitic beading occurs most often after six months, yet it can be present not infrequently under that age.

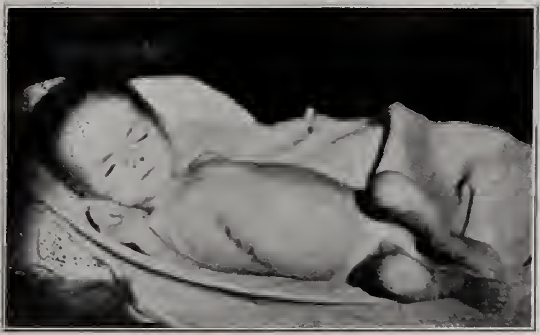


Fig. 4. Beading of ribs, infant ten months old. (Permission Edward Mellanby, University of Sheffield, Sheffield, England. British Medical Journal, May 24, 1924.

Loss of normal muscle tone is common in early rickets, but is usually accompanied by other easily recognized signs of the disease. Restlessness at night is a valuable early clinical manifestation of rickets. It is necessary, of course, to carefully rule out other possible causes of the restlessness. Cranio-tabes cannot be regarded as an early reliable diagnostic sign. Though not infrequently found rather early in infancy, most of us would hesitate to make a diagnosis of rickets without other signs of the disease. Characteristic changes in the bones may occasionally be found early in rickets. These are enlarged cranial bosses and epiphyseal enlargement at the wrist. Most frequently, however, these enlargements are rather late in appearance and, if early, are accompanied by one or more of the early signs. The occurrence of convulsions in young infants will, on occasion, lead one to careful search for other rachitic symptoms. Sweating of the head is probably not a symptom of rickets; it may accompany the anemia or be a part of the general loss of muscle tone, but is of little or no significance as an early sign. Probably the earliest reliable diagnostic sign of beginning rickets is by means of the x-ray. In a recent investigation conducted in New Haven, the characteristic broadening and irregularity of the ulna were so frequently found in infants over two months old that it led to the interesting suggestion of the possibility of a normal degree of rickets being present in all infants.

Chemical examination of the infant's blood for its phosphorous and calcium content have shown these elements to be reduced even before positive x-ray findings were present. Particularly is this true of the phosphorous content. Unfortunately these examinations are as yet too complicated for routine work in pediatrics.

Let me call your attention to an attitude on the part of the infant which has helped to impress me with the fact that the infant was not thriving. This, for want of a better term, I have called the obstetric attitude. The normal infant, if completely undressed, will stretch his legs and assume an attitude of walking. I have seen infants not more than a week old, put the foot forward as if to take a step, when held up under the arm. When an infant, if held up, curls up his legs and assumes the position of the foetus, the infant is probably not thriving. Under these circumstances it behooves the physician to carefully look for signs of rickets. I do not think this particular attitude is diagnostic of rickets, but I do believe that it is a fairly reliable sign of the fact that that particular infant is not thriving and that evidences of rickets should be sought.

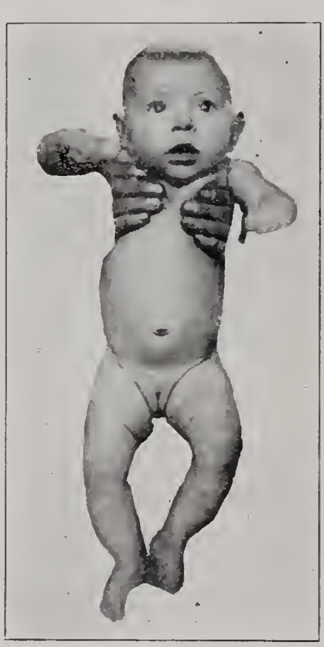


Fig. 5. Normal infant four months old —normal position when held upright.

TREATMENT

A great deal of work is being done looking toward the possible prevention of rickets along the line of proper diet and hygiene during the mother's pregnancy, but until the real cause of rickets is determined, this work must be undertaken with more or less empiricism. Should we regard every infant as potentially rachitic and administer cod liver oil? From our present knowledge it would seem necessary to do so. Fortunately we have at hand remedies which we know will produce healing in rickets. These are cod liver oil, sunlight, exercise, good hygiene and proper food.

COMMENT

Clinically it is not easy to recognize early rickets; therefore, it is important that the physician have in mind the incidence of the disease, the characteristic beading of the ribs, the loss of muscle tone, and the fact that rickets usually attacks the fat, flabby infant. The diagnosis can often be made from the presence of the special type of the diesase: one case may be brought for examination because of convulsions, another on account of anemia, another for its large abdomen, and another for its bronchitis. In all these the bone changes may be so slight as to escape clinical recognition, yet the symptoms from which the infant is suffering are distinctly rachitic. Progress in medicine is being made almost wholly along lines of prevention. Until the real cause of rickets is definitely known, we are compelled to depend upon our clinical knowledge to recognize the diseases early in infancy and promptly administer cod liver oil and sunlight.

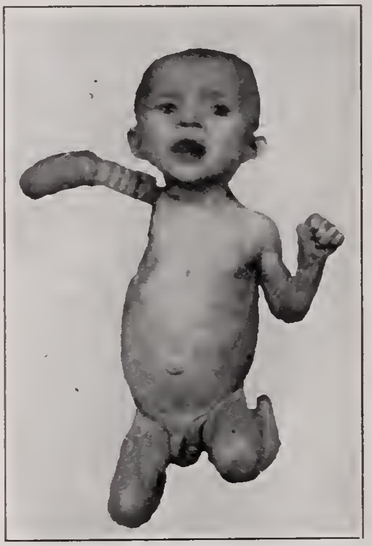


Fig. 6. Rachitic infant four months old — so-called obstetrical attitude when held upright.

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DISCUSSION OF PAPERS OF DR. HOMER DAVIS AND DR. FLOYD CLARKE.

M. G. WOHL, M. D., (Omaha): These two papers are valuable because they prove what experimental medicine can do to solve a medical problem. There is a very interesting thing about the study of vitamins, and that is this: It is not only the local changes we are accustomed to look for when there is a lack of certain vitamins, but we as Nebraska physicians should feel particularly proud of the fact a Grand Island boy—Dr. Wolbach—is doing the most classical and important work in this field, being one of the pioneers. He is proving this: When you deprive an animal of one vitamin, you get tremendous changes throughout the entire body. It is very a interesting observation and very fruitful of clinical deductions that in animals deficient in Vitamin A there is a change in all the secreting glands. The epithelial cells which formerly possessed a secreting function have become inert. This occurs in the pancreas, bladder, and other organs. Dr. Wohlbach is now working in Harvard.

They are finding changes caused by the lack of Vitamin C. There are definite. clear-cut changes in the connective tissue, so we cannot help but believe there are a great number of symptoms which before were little understood; but when we begin to study them on the basis of pathology, they will become clear to us.

This is important because we are living today in the age of diets. It is a popular thing. A lot of people do not get the proper medical advice, and even when under medical observation, some slips may occur. This was impressed very strongly last winter when a little patient came under my observation who was restricted in diet by her physician, and the mother had learned something about it. Every time the child has shown sugar in the urine, this mother has restricted her diet to a starvation diet which has left out Vitamin A and Vitamin B.

What was the result? This girl was on this diet for a year, and she had developed a typical picture of beriberi. We have proven it by the post mortem.

VICTOR E. LEVINE, Ph. D., (Omaha): I have been watching the programs of the various state medical associations and I am sure, so far as my knowledge is concerned, this is the first time the Nebraska State Medical Association has had a paper on Nutrition. That is the one by Dr. Davis, and the paper on "Prevention of Rickets," by Dr. Clarke.

Nutrition is more than diet. It is really sociology in its largest aspects. We know almost as an axiom that faulty diet leads to susceptibility to infection, and plague has never visited any country of the world unless before it there was famine. The Spanish influenza was occasioned by the fact the best foods were removed from the citizens and sent to the army. Denmark and Sweden and Norway sold their best products to the belligerent countries.

We must not go away with the idea, all we need is vitamins and we will have a complete diet and the millenium will occur. It is true you cannot make a diet on vitamins. When you see nutrition in its entirety, then only will you do for your patient the best you can do. If there is no single case of a human being who has pellagra or rickets or beriberi or scurvy, there is no one human being who has just one insufficiency. You know it in the experimental laboratory, but in the human being it is more than one deficiency that brings down the patient to these diseases. If you give your patient nothing but cod liver oil, which is very specific, you do something very well so far as the bones are concerned; but you do not bring the maximum of health to the individual you are treating. So when we speak of vitamins, we are only speaking of one of the many things present in the body. What you have heard in regard to Vitamin A and B and C will occur if you have not enough iron or calcium, or enough calories. Take the fifteen to twenty-five milligrams of iodin in our thyroid. If there are five or six milligrams missing, the pathology resulting may be as fatal to your patient as if he had all the vitamins missing in his body.

A. W. ANDERSON, M. D., (Belvidere): I am glad the Medical society members are taking up the question of diet, because it is a very important thing. I remember as far back as 1892 we had very little of that in our textbooks. They would tell us we should feed a patient a certain amount of nitrogenous food and hydrocarbons; but not very much was said about eliminating some and perhaps pushing the others.

I was very much interested in the paper on diet and congratulate the Doctor for taking the stand he did. The question of vitamins is very important, but I think we put too much stress on vitamins. Food is rich in vitamins in the way the nutrition is carried to the body. We may get too much of a vitamin in one kind of food. It is not the pushing of these foods. When we look at a patient and see the way he is nourished, we should find out what element of the food is the cause of the condition, and eliminate that, and perhaps push some of the other foods containing the nutrition he lacks.

A good many of our diseases, if we trace them down, I think are due to faulty feeding. We have a good many toxic conditions simply because the system is clogged with these different food elements. I think as time goes on, there will be more and more said about diet and nutrition. Of course we know very little about the cause of rickets, but no doubt it is due to faulty diet and lack of sunshine.

DR. HOMER DAVIS, (closing): I was glad to hear the Doctor speak along the line of a balanced ration in all three properties. The calories must come in, and the carbohydrates and proteids and mineral intake. That was emphasized in the paper I just gave.

I should like also to speak about Dr. Clarke's suggestion that he had seen in the last two years an increase in rickets among children. I can probably explain this by a lack of the use of milk in the diet of both mother and child. Why? For economic reasons. We have been going through a period of depression. Many people have not had the proper food. I know a great many families who have gone to the store, and instead of buying real, honest-to-God butter, have bought substitutes that should hardly be allowed to be manufactured for the welfare of the common people.

In regard to overdoing the vitamin proposition, that is something which I have not found at all. They never yet have given people too much. There is no disease caused by that, Doctor. The calories being balanced and the average in the food content being balanced pretty well by the average American citizen, the principal thing is the vitamin balance,, and we have not overdone that yet. All the disease conditions we have that are dietary are absolutely caused by lack of vitamins in the food.

I want to give this white-bread proposition a last whack. I have talked at quite a few public gatherings and have lambasted the people for using white bread. I cannot understand why they will keep on, unless it is ignorance. They are robbing themselves of vitamins in the staff of life when they do it. That is one of the most essential parts of our food.

MODERN ASPECTS OF NUTRITION:

THE PATHOLOGY OF MALNUTRITION

16. Some Recent Viewpoints with Reference to Treatment of Acidosis.

VICTOR E. LEVINE.
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INTRODUCTION

Our present mode of treatment in acidosis is the result of a limited conception of the underlying cause of this condition. When it is found that the alkali in the blood plasma has fallen, or that in the clinical syndrome known as acidosis the pH has diminished, we conveniently jump to the simple inference that acid substances have poured into the blood and have cut down by neutralization the reserve of alkali normally present. This explanation of acidosis has held sway because it is simple and because it fits in with a well known fact in chemistry. This explanation reveals, however, a narrow conception of physiological processes, and is wholly responsible for the wholesale use and abuse of sodium bicarbonate in therapy. We know that acid neutralizes alkali, and from this little fact we build up a theory for the cause of acidosis and a method for its treatment. We make no recognition whatever of other facts and other possibilities either for an explanation of acidosis or for its treatment. Thus it happens in science that we develop from limited knowledge a system of reasoning, which holds indomitable sway for some time, only to be demolished with the widening of the scientific horizon. Such inflexible process of reasoning, which does not take into account all the facts and possibilities known at present, or which does not realize limitations for want of facts yet undiscovered or possibilities yet unfolded, follows the path leading to what the philosopher Baruch Spinoza fittingly termed *"reductio ad ignorantium."*

Yandell Henderson(1) states: "It is time for us to throw off an error of thirty years' standing in regard to acidosis. Whatever the condition is, it certainly is not acid poisoning. A decrease of blood alkali is probably in most cases merely incidental to something more fundamental. An excess of acid is probably not even an essential or much less fundamental feature of it, but merely a secondary and not invariable result. In particular uncompensated acidosis, low pH with low alkali, so far from being uncompensated, in a physiological sense is in fact probably the body's method of seeking compensation."

THE PHYSIOLOGIC ASPECTS OF ACID-BASE REGULATION UNDEREMPHASIZED

As a matter of fact, the problem of acidosis has been largely viewed from the chemical side, and the physiological aspect has been very much neglected. We must always bear in mind that acid-base equilibrium in the blood is a chemical equilibrium, but we must never forget that it is much more than that. The blood is a physiological fluid, the physical consistency, the chemical composition, and the biological components of which are determined by a living organism. Many of the investigators of the acid-base balance of the blood do not visualize regulation of the blood physiologically, but merely chemically. They look upon the body as a chemical stock room with beakers or containers holding a blood of fixed standard that may be thrown out of the normal or usual condition by the addition of an excess of some component like acid. It can never be too much impressed upon one's mind that the human system is distinguished from a dead system by the ability of the former to control the physiological regulation of a physiological equilibrium. Yandell Henderson reminds us that the word physiology is a compound of the Greek words physis and logos. Physis implies the ability of the living organism to cure itself, or in other words, to recover equilibrium, often at a new level. This ability is not possessed by the ordinary non-living system.

THE PRACTICAL VALUE OF THEORY

The most striking beauty of science is its usefulness to mankind. We will now enter into a discussion destined to throw light upon acid-base regulation and the clinical problem of acidosis. This discussion a superficial thinker may consider useless, time-wasting, and of a character too theoretical and highly transcendental. But in reality these so-called theoretical facts are very practical in the every day work of the physician, if by the term practical is implied the use of knowledge plus common sense plus the application of every scrap of science for the saving of human life. We shall presently see how these theoretical considerations have actually helped save the lives of many people, who would otherwise have died of shock produced in various ways; how they have given us a new angle from which to treat diabetic acidosis, which leads to coma; and how they are influencing our treatment of hyperacidity and of gastric ulcer.

IS THERE A NORMAL BLOOD ALKALI?

With reference to acidosis we have been accustomed to look upon this condition as one in which the blood shows a low alkaline reserve or a low pH. For the sake of comparison we have fixed a more or less definite value for normal blood alkali. Is there such a thing as a normal blood alkali? Let us proceed to answer this question.

Not all blood is the same. The number of corpuscles and the amount of hemoglobin are 25 or even 50 per cent greater in one blood than in another, or even in a single person at one time (during life in the mountains) as compared with another time. Let us take for example, an exploring party engaged in an attempt to ascend Mount Everest. Suppose they have gone up from sea level to camp at 17,000 to 23,000 feet above sea level. With them are many Thibetan porters. In the neighboring monasteries are monks who were born and who have spent their entire lives 15,000 feet above sea-level. The blood of these men contains about two-thirds the amount of sodium bicarbonate assumed to be normal. In case of those at the greatest altitude it is only about half the amount at sea-level. But these men are healthy and normal.

The amount of alkali in the blood of a healthy individual is fundamentally regulated and determined by the presence of oxygen in his lungs at the altitude in which he lives. Any change in altitude involves a change in oxygen pressure. At first the lessened amount of atmospheric oxygen induces increased ventilation. The overbreathing sweeps out an excessive amount of CO_2, and the alkali bicarbonate in the blood plasma increases. A slow readjustment, requiring days or weeks to complete, takes place, however, and finally a new normal for alkali is established. Due to acclimatization, altitude finally loses abnormality. Denver, a mile above sea level, is just as normal as New York at sea-level. A blood alkali of 40 or even 35 is just as normal for a mountain dweller as 50 or 60 is for a sailor, or 65 or 70 would be if a man lived for a month continuously in the compressed air of a caisson.

CHEMICAL REGULATION OF H-ION CONCENTRATION OF BLOOD

The hydrogen-ion concentration of the blood is under chemical and physiological control. Chemically, the pH of the blood is determined by the proportion of carbonic acid (H_2CO_3) to sodium bicarbonate ($NaHCO_3$). The actual amount of either carbonic acid or sodium bicarbonate may fluctuate markedly, and yet the pH of the blood may remain the same. Thus, the proportion of H_2CO_3: $NaHCO_3$ may be 1:20, 2:40, 3:60, or 4:80, without affecting the value for pH. If both H^2CO_3 and $NaHCO_3$ are twice normal pH is normal; if both are half normal pH is still normal.

RELATION OF CO_2 IN ALVEOLAR AIR TO CO_2 DISSOLVED IN BLOOD PLASMA

The carbonic acid content of the blood plasma is determined by Henry's law relating to partial pressure and solubility. According to this law, the carbonic acid dissolved in the blood varies directly as the partial pressure of the gaseous carbon dioxide in the air of the lungs. In other words, the greater the concentration of carbon dioxide in the alveolar air, the greater is the quantity of carbon dioxide forced into solution in the blood to form carbonic acid. Thus, a pressure of 20 mm. of CO_2 corresponds to 1.5 volumes per cent of dissolved CO_2 in the blood, a pressure of 40 mm. to 3 volumes per cent, and a pressure of 60 mm. to 4.5 volumes per cent. In view of this fact we can substitute in the ratio H_2CO_3:$NaHCO_3$, the value for the partial pressure represented by CO_2 (multiplied by a constant) instead of the value for dissolved carbonic acid.

PHYSIOLOGICAL REGULATION AND H-ION CONCENTRATION

Thus far we have dealt with chemical and physical facts. We now come to physiology with emphasis upon the most important connotation of this term, namely, regulation. Acid-base factors in the blood are largely held in equilibrium through the removal of fixed acids by the kidney, and of volatile acids by the lungs. Metabolism is also an important factor in the physiological regulation of the acid-base balance. From the investigations of the last few years it is becoming evident that an adequate supply of sugar, an ample supply of oxygen, and a sufficient utilization of this sugar through oxidation have an important bearing on the maintenance of normal blood alkali and normal pH.

The influence of respiratory processes on acid-base balance of the blood and its practical bearing on therapeutic methods has been brought to the front by the work of Henderson and others. The pivotal point in the regulation of blood pH lies in the pulmonary ventilation or in the amount of air breathed. We have seen that the hydrogen-ion concentration of the blood depends upon the attainment of equilibrium between acid and base, that is between carbonic acid and sodium bicarbonate. We have also seen that the concentration of dissolved CO_2 in the blood depends upon the concentration of CO_2 in the alveolar air. That carbon dioxide influences markedly the volume of air breathed can be seen from the figures of Zuntz(2), who chronicled the effects of breathing air of different concentrations of this gas.

	Volume Breathed Per Minute
Normal air	7,433 c. c.
Air of 20.2% O, 0.95% CO_2	9,060 c. c.
Air of 18.06% O, 2.97% CO_2	11,326 c. c.
Air of 18.42% O, 11.15% CO_2	32,464 c. c.

Even a very slight change in the CO_2 of the air in lungs brings about a marked change in the volume of air breathed. We may therefore say that the quantity of CO_2 in the alveolar air, which is a measure of its partial pressure, is a very sensitive physiological regulator of pulmonary ventilation. It must be said, however, that the regulation of normal breathing is not merely a chemical regulation through CO_2. It is also a nervous regulation, chiefly through the vagi, of the rate and depth of the movements necessary to effect the required amount of ventilation.

INVERSE RELATION IN THE LUNGS BETWEEN VENTILATION AND CO_2 PRESSURE

The ventilation and CO_2 pressure in the lungs vary inversely. The greater the ventilation the lower the percentage and partial pressure of CO_2 in the lungs. Thus 0.1 liter of CO_2 if diluted in 1 liter of air gives a CO_2 percentage of 10, the same volume of CO_2 diluted in two liters yields a percentage of 5, while the same volume in 4 liters gives a percentage concentration of 2.5. A man in good health, living at sea-level, ventilates his lungs with 18 volumes of air for each volume of CO_2 exhaled. This dilution gives a normal percentage of 5.5 for alveolar CO_2, a partial pressure for this CO_2 of 40 mm. and a pH of 7.35 to 7.4. In order to keep these figures constant, his CO_2 production and volume of air breathed should bear the same ratio under all conditions of metabolism. Thus if twice as much CO_2 is produced by him during walking as during rest, the volume of air breathed should be twice as great in one condition as in the other. That such is the fact has been proven by Haldane and Priestley(3). The volume of pulmonary ventilation varies almost exactly in proportion to CO_2 production in the body, and this holds the pressure of CO_2 in the air of the lungs nearly uniform. This in substance is the law of Haldane and Priestley. To recapitulate, the volume of air breathed controls the concentration of CO_2 in the alveolar air, which regulates, according to Henry's law, the quantity of dissolved CO_2 or carbonic acid. The latter in turn adjusts itself with relation to the quantity of blood bicarbonate, if the pH of the blood is to remain unchanged.

OXYGEN PRESSURE AND PULMONARY VENTILATION

A second factor in controlling the volume of air breathed is the oxygen pressure. Let us cite figures from Zuntz on this point.

	Volume of Air Breathed Per Minute
Normal air	7,325 to 9,000 c. c.
Air with 10 to 11.5% O	8,166 to 9,428 c. c.
Air with 8 to 10.0% O	9,093 to 12,810 c. c.

From the figures of Zuntz it is seen that either an increase in the concentration of CO_2 or a decrease in the concentration of oxygen in the air brings about an increase in the pulmonary ventilation. The influence of oxygen, however, is very slight in compariosn to that exerted by carbon dioxide. A depression, however, of the respiratory center sooner or later follows the breathing of an air of low oxygen pressure.

BLOOD ALKALI AND PULMONARY VENTILATION

A third factor in controlling the volume of air breathed is the blood alkali. Let us take an example. If a man on Pike's Peak has a blood alkali only 4/5 of that at New York, his alveolar CO_2, if the pH of the blood is to remain normal, must be 4/5 as great as that at New York. In other words his alveolar CO_2 must be diluted to the extent that his breathing at the high altitude on Pike's Peak corresponds to a volume 5/4 or 1.25 times as great as at the comparatively low altitude at New York. In order to maintain a normal pH, any amount of alkali in the blood needs a corresponding amount of carbonic acid. The blood alkali determines therefore the alveolar CO_2, which in its turn adjusts the pulmonary ventilation, thus establishing a dilution ratio or volume of air breathed per unit mass of CO_2 exhaled. It follows from these facts that an analysis of the alveolar CO_2 pressure and an analysis of the blood alkali afford almost exactly the same information, but in slightly different terms.

According to Yandell Henderson, the oxygen pressure in the lungs and in the arterial blood holds a relation to blood alkali or to the concentration of bicarbonate, which is in the nature of a constant ratio. The partial pressure of oxygen in the arterial blood (expressed in millimeters) in comparison with the alkali (expressed in volumes per cent of carbon dioxide) is in the ratio of 100:50. This ratio is disturbed by a change in altitude, which alters the oxygen pressure or barometric pressure. It is also disturbed in diseases of the heart and of the kidney, in diabetes, in anaesthesia, and in conditions of asphyxiation. The air-hungry cardiac patient is short of oxygen, and has symptoms not unlike one suffering from mountain sickness. His blood, like that of the mountaineer, is rich in corpuscles. His physical deterioration, however, prevents his attaining complete equilibrium, and he fails more or less at attempts to compensate. The nephritic at sea-level is under a barometric pressure which is abnormally high for his blood alkali. The oxygen pressure in his lungs is as great as that of his healthy neighbor, whose blood alkali has not undergone reduction.

LOW pH CAUSED BY DEPRESSED BREATHING

According to Yandell Henderson, a low pH in a fluid buffered like blood can never be due immediately to any other cause than depressed breathing. The immediate cause for a high pH is overbreathing. *Acidosis in the sense of a low pH is simply a depression of breathing. Its more fundamental cause lies in the disturbance of respiration.* This interesting correlation of acidosis and respiration is neatly brought out by the experience of J. B. S. Haldane(4), who for the sake of science, ingested considerable amounts of ammonium chloride. This compound broke up in the body to ammonia and hydrochloric acid. The ammonia was convetred into urea, and the hydrochloric acid was neutralized by body alkali. The sodium bicarbonate of the blood was lowered markedly. The change in his respiration can be gleaned from the feelings of his father, J. S. Haldane, who was almost ashamed to walk with his son along the streets of Oxford, for the latter was panting so hard as to attract every one's attention.

ALKALI RESERVE OF BLOOD PLASMA CAN BE LOWERED WITHOUT THE PROCESS OF NEUTRALIZATION BY ACID

The theory of acidosis in its popular sense rests largely upon the term "alkaline reserve" of the blood plasma, which is determined through the estimation of alkali bicarbonate. Van Slyke(5) introduced this term. Yet it was he also who demonstrated that by far the greater part of the acid-neutralizing power of the blood, the true alkaline reserve, really resides very largely in the hemoglobin alkali of the red corpuscles and relatively little in the sodium bicarbonate of the plasma. Haggard and Henderson(6) have pointed out that the measurement of the "acid load of the corpuscles" would be a much truer index of the real alkaline reserve of the blood than the usual determination of plasma bicarbonate. Bock, Field and Adair(7) have also found that the diminuation in bicarbonate is not a valid index of the amount of acid neutralized by the blood.

It is a well known fact in asphyxia and after intense muscular exertion, the bicarbonate falls. This fall is attributed to the lactic acid produced. The amount of lactic acid in the neutralized form generally found after excessive muscular effort is too small to account molecule for molecule for the neutralization of sodium bicarbonate. Even if the figures exactly balanced, there would still be no need for the existence of a simple lactic acid acidosis, for most of the alkali used for neutralization is drawn from the homoglobin alkali reserve, with the result that a very slight decrease in the blood bicarbonate actually takes place. With these facts in view, Yandell Henderson maintains that variations in the alkaline reserve of the blood plasma do not always depend on neutralization of alkali, but upon the withdrawal of alkali from the blood into the tissues. *The physiologic purpose of a low pH is to call more alkali into the blood, and the purpose of a high pH is to drive some of the alkali out of the blood.*

In this connection we may mention the recent findings of Peters, Bulger, Eisenman and Lee. They state that in diabetes ketosis of considerable severity may develop without appreciably affecting the bicarbonante plasma. In these cases chloride is usually found reduced in the plasma, and the base required for the neutralization of the ketonic acids is evidently derived from chloride. Since the reduction of chloride may occur without noticeable augmentation of chloride excretion, it follows that the chloride ion is merely transferred to the tissues.

RESTRICTION OF THE TERM ACIDOSIS

The term acidosis is somewhat confusing since it is used in different senses. It may denote (1) a clinical condition; (2) a low pH; (3) low alkali bicarbonate, (low CO_2 capacity or low alkaline reserve); (4) ketosis. Yandell Henderson maintains that the word acidosis should be applied only to the clinical symptom complex. For conditions of low pH Henderson prefers the term "hyperhydria" or "relative hypopnea." The latter term indicates the immediate cause of the condition, that is, relative depressed breathing. The term "uncompensated acidosis," commonly applied to a condition with a low pH, does not tell that the function of respiration is not compensating. For the third condition, that of low alkali bicarbonate or low alkali reserve, the term "hypocapnia" is recommended by Henderson. With reference to the various senses in which the term "alkalosis" is now used, high pH can be designated as "hypohydria," and a high alkali as "hypercapnia."

MANY DEATHS DUE TO RESPIRATORY FAILURE

In the light of the above theorizing let us see how a low pH (uncompensated acidosis) can be raised to normal without ingestion by mouth or without the rectal, subcutaneous or intravenous administration of sodium bicarbonate or any other alkali in the therapeutic catalogue. Depressed breathing is, according to Henderson, the underlying cause for a low pH. It is therefore logical to attempt to stimulate the respiratory process in order to satisfy the physiological need of the patient for recovery of the normal acid-base equilibrium(8). A goodly proportion of all deaths is due to failure of respiration. This is the immediate cause of death in ether or chloroform anaesthesia, in drowning, in electric shock, in carbon monoxide asphyxia, in morphine poisoning, in asphyxia in the new-born, in intoxication due to ethyl alcohol or wood alcohol. In these conditions when the respiration first ceases, the individual may not yet be really dead. To use an apt analogy, the human engine has stalled and the self-starter is out of order. The vital machine needs to be started again. Our duty is to get busy, roll up our shirt sleeves, apply some elbow grease, and crank the automobile. What this cranking is in a biologic sense and how it brings about the starting of the human machine we shall presently see.

Carbon monoxide is the chief hazard to health in the neighborhood of blast furnaces and in mines. In smoke from a burning building, in gases issuing from an automobile exhaust the chief toxic substance is carbon monoxide. The automobiles we possess—ten to fifteen million in number—give up to the air an average of about two cubic feet of carbon monoxide per car each minute. A Ford produces per minute about a cubic foot of carbon monoxide. This quantity is sufficient to make a small closed garage death-inflicting in five minutes. Men in repair shops are very often exposed to the dangers of carbon monoxide poisoning.

We shall make no lengthy comments upon the fact that death by drowning or by electric shock is of rather frequent occurrence. We do, however, wish to comment upon the death-rate from carbon monoxide poisoning, which is rapidly increasing. In New York City alone more than four hundred deaths due to carbon monoxide occur every year. As a cause for mortality throughout the country, asphyxia through this gas ranks in importance with diabetes mellitus.

The favorite method in treating respiratory failure, as in shock due to electricity, drowning or other causes, is artificial respiration. The administration hypodermically of a stimulant may be resorted to by the ambulance physician preliminary to bringing the patient to the hospital for more intense treatment. Both the mechanical method of artificial treatment and the pharmacological method of the administration of stimulants may by no means be sufficient to recall normal respiration. And it is on account of this fact that we must not ignore yet another method, extremely important and capable of yielding remarkable results. In this method we simply assist nature in recovering from respiratory failure by imitating her own ways of initiating and stimulating the process of respiration.

Let us now go back to "the useless facts" we have elucidated in our theoretical discussion. All the abnormal conditions we have mentioned that end with respiratory paralysis have one clinical syndrome in common, namely the simultaneous presence of a state of acidosis. If we could bring back the acid-base balance, we would at the same time do away with the respiratory depression, which sooner or later may end in complete failure of the respiratory process.

But how can we bring back the pH to normal? Henderson maintains that the acidosis is due to depressed breathing. The question can now be answered by stating that we must stimulate the respiratory center and thereby restore normal pulmonary ventilation.

We have shown in the beginning of this paper that a normal balance of acid and base in the blood depends upon three factors. These are the carbon dioxide in the alveolar air, which is determined by the carbonic acid in the blood; the blood alkali; and also the blood oxygen, which is also determined by the amount of oxygen in the alveolar air. Any change in any one of these factors disturbs the acid-base balance of the blood, and moves the reaction of this biologic fluid to the acid or the alkaline side.

LOW CO_2 IN THE ALVEOLAR AIR PRODUCTIVE OF APNEA OR SUPPRESSION OF BREATHING

To dilute an alveolar air already poor in CO_2 with air from the outside or even with oxygen pumped into the lungs is contrary to physiological facts. It is carbon dioxide concentration in the alveolar air that stimulates the respiratory system in order to keep up a normal acid-base balance in the blood. Increased production of carbon dioxide during muscular exercise brings about a corresponding increase in the volume of air breathed. If CO_2 in the blood is abnormally decreased by excessive breathing, respiration is likely to stop until a normal amount of this compound re-accumulates in the blood and again stimulates the respiratory center. If CO_2 in the blood is low, as in conditions of depressed breathing, the same thing will happen. On theoretical grounds we must maintain that an alveolar air already poor in CO_2, should not be diluted with air from the outside or even with oxygen, for decreased concentration in the alveolar air operates to depress breathing still more or to stop respiratory movements altogether. It therefore follows that pure oxygen or air enriched with oxygen is no respiratory stimulant. It is, on the contrary, a powerful depressant of breathing. In fact, Mosso(9), as early as 1904, pointed out that breathing oxygen alone produces apnea or cessation of breathing.

A FEW FACTS TAKEN FROM ACTUAL EXPERIENCE

A few facts taken from actual experience will bear out the dangerous effect of reducing the CO_2 alveolar pressure by dilution. Runners seldom collapse when the race is on. They strain heart and lungs to get an increased supply of oxygen. Their pulmonary ventilation is therefore increased, and the CO_2 pressure in the alveolar air kept down. When the race is over they pant heavily for a few minutes, and then collapse. Animals kept in an experimental chamber containing carbon monoxide may be seen bearing up in the preliminary stages of gassing, although their movements may be incoordinated and their gait unsteady. When moved into fresh air, they may completely collapse. Mine rescuers sometimes walk with vigor and firm step out of the gasses of a burning mine, but fall unconscious after a few whiffs of fresh air. A similar experience may befall the fireman fighting a fire, who comes out into the fresh air.

Since CO_2 in certain concentrations acts as respiratory stimulant, it should be able to abolish depression of breathing. It should also bring back the pH to normal. Henderson has actually found that breathing air rich in CO_2 recalls alkali from the tissues into the blood, and restores the plasma to its normal alkali. Henderson has gone one step farther. Confident of his experimental results, he has urged the use of a mixture of 5% CO_2 and 90 or 95% oxygen as a clinical method for combating acidosis with its concomitant depression in the respiratory process. In passing we may mention the fact that the effect of very large amounts of CO_2 in the inspired air causes depression of the respiration rather than stimulation. Death from CO_2 is accompanied by symptoms quite different from those accompanying lack of oxygen. Up to about 10 or 15 per cent, CO_2 augments the respiration; beyond this concentration it decreases it. At concentrations of 40 to 50 per cent, death takes place as a result of extreme narcosis, without any manifestations of convulsions.

RATIONAL TREATMENT IN CARBON MONOXIDE POISONING

In asphyxia due to carbon monoxide inhalation, remarkable success has been met through the combined application of artificial respiration and the oxygen-carbon dioxide mixture(8). The mechanical stimulation is discontinued when the individual begins to breathe, but the inhalation should be continued for fifteen to thirty minutes longer. With the gas mixture, the after effects of carbon monoxide do not appear and the person may go back to his work within an hour or two. Without the mixture of carbon dioxide and oxygen, nausea and headache persist for from one to three days. Forbes, Cobb, and Fremont-Smith(10) have shown that the headache is due to congestion and edema of the brain, for he has actual photographs showing the brain bulging out through a trephine hole.

It is claimed that one-third of all persons severely gassed, but not dying immediately from asphyxia, finally succumb as a result of fatal pneumonia. With the inhalation treatment of Henderson and Haggard pulmonary congestion likewise fails to appear. A person gassed with carbon monoxide may be made to regain consciousness, but may lie for hours with subnormal breathing. The carbon monoxide is eliminated slowly, and is able to produce while still present in the system, headache, nausea, and even pneumonia. With the use of the Henderson-Haggard inhalation mixture, normal pulmonary ventilation is quickly restored, the carbon monoxide is driven out rapidly with the result that no pulmonary or cerebral congestion follows the apparent recovery from carbon monoxide asphyxia.

We must mention, however, that Walton, Eldridge, Allen and Witherspoon maintain that treatment of carbon monoxide asphyxia with oxygen alone is as efficient as treatment with a mixture of carbon dioxide and oxygen. The conclusions of Walton and his co-workers, according to Henderson, are not to be applied to the human being, since the canine is not as sensitive as the human being to the stimulating effect of carbon dioxide.

TREATMENT OF ETHYL ALCOHOL AND OF METHYL ALCOHOL INTOXICATION

Asphyxiation with fumes of gasoline and other volatile substances have been successfully treated with the mixture of carbon dioxide and oxygen. This mixture is especially to be recommended in the treatment of acute alcoholic intoxication. Hunter and Mudd(11) describe experiments on the effect of inhalation of air and carbon dioxide in intoxication with ethyl alcohol. Inhalation of this mixture quickly restored consciousness without subsequent development of nausea and vomiting. The carbon dioxide and oxygen mixture should be especially indicated in wood alcohol poisoning. While ethyl alcohol burns in the body, methyl alcohol does not. It continues to accumulate in the system until the development of such grave symptoms as blindness. The kidney eliminates but a very small amount of this alcohol. Haggard maintains that the respiratory tract acts as the sole path for the elimination of this poison.

TREATMENT OF SHOCK DUE TO ANAESTHESIA

Ether and chloroform are volatile poisons that the respiratory system helps to eliminate. After anaesthesia the respiration is depressed. Henderson and Scarbrough(12) point out acapnia, that is a condition of diminished CO_2 in the blood, as a factor in the dangers of anaesthesia. It must be remembered that a state of acapnia brings about one of apnea, which literally means a condition of no breathing. The elimination of the anaesthetic is so slow, that the patient in the post-anaesthetic period experiences a prolonged period of partial asphyxia. During this period there may occur nausea and vomiting, and at times uncontrollable hiccough, and sometimes post-operative pneumonia. The respiration, needless to say, is depressed and pulmonary ventilation is subnormal. This condition calls for the administration of carbon dioxide-oxygen mixture to stimulate respiration in order to ventilate rapidly the anaesthetic out of the body. As the result of the use of the respiration-stimulating gaseous mixture, vomiting and nausea are greatly decreased, arterial pressure and blood alkali are easily brought back to normal. These conclusions are based upon the clinical findings of White(13) in the Massachusetts General Hospital with the process of de-etherization by means of carbon dioxide inhalation, and upon the results obtained by Sword(14) at the Grace Hospital, New Haven, with the use of carbon dioxide as an adjunct to ethylene anaesthesia. Both White and Sword have demonstrated that a patient showing signs of respiratory failure in the course of anaesthesia can be restored to full breathing by the addition of CO_2 to the anaesthetic.

HENDERSON-HAGGARD GAS MIXTURE IN ASPHYXIA IN THE NEW-BORN

Carbon dioxide diluted with oxygen has also been successfully used in initiating spontaneous respiration in the new-born. It sometimes happens in somewhat difficult obstetric cases, especially after prolonged analgesia with oxygen and ether, that the infant is delivered more or less in a state of narcosis, and does not respond to routine measures for initiating respiration. In such cases the carbon dioxide and oxygen mixture of Henderson and Haggard may succeed when other procedures have failed.

TREATMENT OF MORPHINE NARCOSIS

Death as a result of morphine poisoning is due to the failure of respiration. The respiratory center is depressed and as a consequence it becomes insensitive to the stimulus induced by carbon dioxide. More CO_2 is, therefore, necessary to bring about stimulation and to induce breathing. Shock due to morphine poisoning is another indication for the inhalation of a mixture of carbon dioxide and oxygen.

HENDERSON-HAGGARD INHALATION TREATMENT IN PNEUMONIA

It is generally believed that under the conditions of respiratory distress existing in pneumonia, carbon dioxide should not be administered. Henderson, however, has had reports from a number of clinical friends, that the oxygen-carbon dioxide mixture could be administered with good effects.

MORE WIDESPREAD USE OF CARBON DIOXIDE-OXYGEN MIXTURE NECESSARY IN ORDER TO SAVE MORE LIVES

From our discussion of the efficiency of a mixture of carbon dioxide and oxygen in restoring normal respiration and in helping individuals in recovering from shock, it follows that every hospital, emergency station, fire department or ambulance service should be equipped with the special apparatus devised by Henderson and Haggard for the inhalation of a proper mixture of carbon dioxide and oxygen. Every intelligent first aid worker, interne, or physician should be ready to administer this mixture whenever called upon to revive an individual from shock of whatever origin, in which the patient is unconscious or semi-conscious, and in whom respiration is more or less depressed or altogether inhibited as a result of an existing state of acidosis.

OTHER METHODS OF COMBATING LOW ALKALI OR LOW pH WITHOUT THE AID OF SODIUM BICARBONATE

We have mentioned the fact that the acid-base balance in the blood is controlled by the activities of the kidney and the lung, and through the process of energy metabolism which involves carbohydrate, oxygen, and a hormone, like insulin, to bring about the utilization of carbohydrate presumably through the process of oxidation. In the next issue we will discuss the newer treatment of diabetic acidosis, which dispenses with the use of sodium bicarbonae. Incidently we will take up the use of sodium bicarbonate in the treatment of hyperacidity and of gastric ulcer. As a matter of fact, our enlarged views of acidosis have led us to employ therapeutic measures other than sodium bicarbonate, which really strike at the root of the evil responsible for an existing state of acidosis. The newer viewpoints in acidosis are taking us away from sodium bicarbonate, and are leading us to saner and more rational paths of therapy, as is evidenced by the efforts made to combat low alkali (compensated acidosis) and low pH (uncompensated acidosis) by the use of such weapons as insulin in diabetic acidosis, plain water in the acidosis caused by dehydration, sugar in the acidosis resulting from hypoglycemia, well-balanced diet in the acidosis arising from undernutrition and malnutrition, alkali-rich foods, such as fruits and vegetables, and sunlight or ultraviolet rays, which also possess the physiological property of raising a low blood alkali to a normal level.

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(To be Continued)

GENERAL ADVICE TO THE EXPECTANT MOTHER.

RALPH LUIKART, M. D., F. A. C. S.,
Omaha, Neb.

A patient's care during pregnancy should be none other than ordinary good hygiene. The advice to be given her comes under four general heads, which the doctor should first state briefly and then go over in detail:

First: Intake; which includes food, water and any medicine necessary.

Second. Elimination; which includes the bowels, kidneys and skin.

Third: Rest. Under this head should also be included abdominal support, care of the abdomen, breasts and nipples.

Fourth. Exercise.

INTAKE

Water: The patient must drink at least ten glassfuls of water a day, more if she is able. Remember that the water that she drinks that she does not care for is the water that does the most good. When she is thirsty and drinks to satisfy her thirst it is not an unusual thing to have the water upset her stomach, but if she drinks half a glass or a glassful of water at any time even though she does not care for it very rarely does it cause any disturbance, but it actually is of value to her. She should drink two glassfuls immediately on rising, hot, moderately cold, or with a little salt in it if she prefers. A glassful on retiring should be taken even though it may make her get up in the night. With a little effort the other seven to nine glassfuls may be taken during the day. After once the habit is established, which may take several weeks, it is very easily continued.

Food: The patient should make no change in her diet provided she is eating sufficient quantity of fruits and rough vegetables, unless it is indicated by increase of weight of more than two pounds a month or an elevation of blood pressure or urinary findings. Cooked fruits are most to be desired such as cooked apples, prunes, figs, etc. Oranges are always a valuable food. Remind her that tomatoes, grapes, grape juice, vinegar and all berries have a little more tendency to cause a sour stomach and the so-called heart-burn. These latter things are not to be avoided unless her condition indicates it. Sodium and calcium glycerophosphate or citrocarbonate may be used to relieve heart-burn in case the other suggestions given above do not produce results.

In case there is nausea and vomiting she should take at least six small meals a day with an effort to take the food before she becomes nauseated. She will recall that most anyone who passes her regular meal time frequently will develop a feeling of distress in the stomach, a nausea. This is because of the excessive amount of hunger. During pregnancy hunger develops more rapidly for the purpose of increasing the intake. If in addition to frequent eating a sufficient quantity of water is taken, the bowels are kept free and she does not become overly tired or nervous the nausea can be overcome ordinarily in a very short time.

Medicine: The only medicine she should take is lime and milk of magnesia unless some unexpected condition arises; then the doctor should be consulted. The milk of magnesia should be one of the better preparations such as Squibbs, Phillips, etc. The purpose of the milk of magnesia is to alkalinize the mouth, protect the teeth from the acids in the mouth, which are increased during pregnancy. There is an old saying, "every pregnancy a tooth," but by using the milk of magnesia you "preserve the surface and save all." The milk of magnesia should be swished between the teeth after they are brushed just before retiring and the mouth not rinsed out afterwards.

ELIMINATION

The bowels should act at least once a day. This daily action should be obtained if the food and fluid intake is proper. From a teaspoonful to a tablespoonful of the milk of magnesia may be swallowed if a laxative is needed. More is apt to cause gas and discomfort. As a laxative the milk of magnesia is extremely mild and will do no harm, but if that is not sufficient she should consult her doctor before taking other laxatives.

The kidneys' action should not change during pregnancy, but there may be more frequent urination during the first three months and toward the end of pregnancy because of the pressure of the womb on the bladder. She should notify her doctor if the quantity of urine seems to have definitely decreased, even though she is sure her intake of liquids is sufficient. A specimen should be left at the doctor's office half way between visits, that is once a month. If the specimen of urine is normal she will not hear from the doctor, but if it shows any abnormality the doctor will call and advise her of any treatment he thinks is indicated.

Skin: An ordinary number of baths will keep her pores open and keep her skin in healthy condition. A bath twice a week in winter should be sufficient. She should not sit in a tub of hot water and soak. Instead of resting the patient it takes her strength.

REST

She should have at least eight or nine hours sleep each night and her hour of retirement should be quite regular. It will be necessary for her to lie down each afternoon from thirty minutes to an hour, allowing herself to sleep if possible. The rest that she should take in the afternoon is not always necessary because of general fatigue, but it is absolutely necessary that she lie down in order that her circulation, that is her heart and blood vessels, be given additional rest during her pregnancy. If she will do this faithfully she is very much less apt to have enlargement of the veins of the legs, of which there is danger during pregnancy, and there is much less apt to be swelling of her ankles and legs.

Under this heading the doctor should also mention care of her abdomen and breasts. If the skin of her abdomen or around her breasts becomes tender it should be massaged once or twice a day with a stroking motion, using olive oil or cocoa butter on the fingers. This will tend to prevent scarring as well as relieve soreness. After the seventh month it will be necessary that she use some medicine on the nipples each night. The prescription can be gotten by asking the doctor for it at that time.

An abdominal support, a so-called maternity corset, should be worn after the middle of the fourth month. The corset to be satisfactory should give support to the lower part of the abdomen. There should be almost no pressure against the abdomen higher up. If the corset fits properly it will prevent or relieve the feeling of heaviness in the lower abdomen, backache and the dragging sensation which occurs if it is not worn. At the time the patient wishes to obtain the corset the doctor should give her the names of places where a satisfactory corset may be obtained.

EXERCISE

The patient should continue her exercise about the same as she has heretofore, gradually decreasing it as she finds herself becoming more easily fatigued. She should get some outdoor exercise every day if possible, avoiding climbing stairs unnecessarily. She should not allow herself to become exhausted at any time. If she finds herself growing tired, regardless of what her plans may be for the rest of the day, she should be sure that she takes some rest before continuing and allowing herself to become exhausted. Exhaustion may result in a tendency toward miscarriage. Overexertion is usually the beginning of such conditions.

In addition to the above the patient should be informed in regard to birth marks and marital relations. There is nothing that she may do, see, hear or worry about that in any way will cause a deformity of her unborn child, providing she gives herself the care referred to above. Attributing marks to fright, etc., is an old superstition. If the egg from the mother and the germ cell from the father are both normal there is very little likelihood that there will be any abnormality in the child's development, providing the mother and father are in ordinary health. One would not plant a seed that was abnormal or diseased in good soil or a perfect seed in poor soil and expect perfect reproduction. So far as marital relations are concerned there is no harm in normal marital relations up to the end of the seventh month of pregnancy provided the patient is not unusually nervous, nauseated or has a bearing down feeling following intercourse, i. e. a tendency toward miscarriage. The danger of marital relations after the seventh month is that micro-organisms may be introduced into the vagina resulting in infection at the time of the delivery. All but venereal organisms are of little danger provided they have been in contact with the vaginal secretions for a month to six weeks.

OFFICE VISITS

The patient should go to the doctor's office once a month during the first seven months and twice a month the last two months, at which times her weight and blood pressure should be taken, and if there is anything she is in doubt about or any medical information she wishes she should not hesitate to call on the phone or go to the office if she feels able.

The patient should report at once to the physician anything that may affect her well-being, especially the following symptoms:

1. Obstinate constipation.
2. Shortness of breath.
3. Acute illnesses, especially colds, sore throat, and persistent cough.
4. Persistent or recurring headache.
5. Recurring nausea or vomiting.
6. Visual disturbances.
7. Dizziness.
8. Pain in the upper abdomen.
9. Edema, especially of face, hands, and ankles.
10. Decrease in amount of urine passed in 24 hours. tion.
11. Severe pain in the lower abdomen.
12. Vaginal bleeding, even the slightest.

—630 Bankers Reserve Life Bldg., Omaha.

SAVING TIME IN MEDICAL SCHOOL

Ray Lyman Wilbur, San Francisco (Journal A. M. A., May 15, 1926), says that it became quite clear to all that there is no possibility of making a pathologist, physiologist, anatomist, bacteriologist, biochemist and pharmacologist out of every prospective medical student, and that it is just as impossible to turn out a radiologist, urologist, rhinologist, laryngologist, otologist, orthopedist and pediatrician in the later clinical work in the medical school. It has become clear to most medical teachers that a careful selection is necessary in order to provide broad general training, sound scientific training and adequate clinical training during the period from the late teens through the early twenties in the development of physicians. Careful selection in the fundamental fields, together with the elimination of the specialties, will give sufficient training time to turn out a well rounded general practitioner, if that becomes the program of the American medical school. It seems to me, then, that the first thing is to choose the training of a general practitioner as the goal of the regular medical course, and then with great care to select the subjects that are requisite; and, second, to choose with even greater attention the methods of handling those subjects, the amount of time to be given to each of them, and to insist on practical clinical training during the period when this is most possible to the young physician. To begin with, it is going to be necessary to eliminate so far as is possible many of the traditional absurdities of the medical curriculum, and also many of the methods, including an abnormal number of lectures, certain sequences in training, and that sort of thing. With proper coordination by the various instructors, there is no reason why there should be the endless repetition to which the present medical student is subjected, leading him to lack of interest and preventing many students from obtaining that concentration and thoroughness which will mean so much all through later life. Why should the medical student be told the same thing a dozen times by as many intsructors? Why not stop teaching him, and let him get most of his information for himself after one or two exposures? Less time in the lecture room and more time in the library, at the desk, at the bedside, and in the clinic, will lead to that self-training which sooner or later every practitioner must obtain. A proper use of the calendar year with short vacations and a reasonable study list should give the medical student a life of only moderate strain, similar to that which he will experience afterward, and with better results in his training. The long summer vacation has no reasonable educational or physical excuse; there may be an economic necessity for it in the case of those students who need to assist themselves financially. The organization of the medical course on a four-quarter basis, leaving one month, say September, in the year free and with vacation periods of a week at Christmas and at Easter, it seems to me, is an ideal plan. In this way it is readily possible to do the present four-year course in three. A proper mixture of work in the outpatient clinic, laboratory, hospital and library can be so arranged that an adequate amount of training can be offered without difficulty. If the quarter system is used for both the college period and for the medical school, five calendar years should without difficulty give all the work that is now obtained in the two-year college course and the four-year medical course, together with a portion of the intern year. Under this system, students who need to support themselves can drop out for a quarter or more at any time, and return when their finances are rehabilitated. Graduation is possible at the end of any quarter, so that there is no needless loss in time. In other words, by these methods we can in a shorter period of time give to medical students just as good, if not better, training, with less speed, fewer spurts, less talk by the teachers, more study and self-training by the students, and with better care of the mind and body.

OCCURRENCE OF THROAT INFECTIONS WITH STREPTOCOCCUS SCARLATINAE WITHOUT RASH

An investigation was made by Franklin A. Stevens and A. R. Dochez, New York (Journal A. M. A., April 10, 1926), of an epidemic of hemolytic streptococcus infection as to whether an anginal infection with Streptococcus scarlatinae can occur without a rash. If such infection does occur, does it occur in susceptible persons, as indicated by the intracutaneous toxin test for immunity? Do agglutination and toxin production correspond as a test of specificity for the identification of strains of hemolytic streptococcus during an epidemic of scarlet fever? Are strains of hemolytic streptococci from cases of acute pharyngitis as closely related as the groups from scarlet fever and erysipelas? These questions are answered as follows: Scarlatinal infection of the throat may occur without a rash. This type of infection may occur in individuals showing negative skin reactions to scarlatinal toxin. The Dick test is not a reliable index of immunity to such throat infections with Streptococcus scarlatinae. Agglutination reactions with scarlatinal serum and toxin production are closely parallel. There is no antigenic relationship between strains of hemolytic streptococci from acute streptococcus pharyngitis.

Operators are like golfers. Many can play at golf, after prolonged instruction and practice, but few can ever play golf. Unless the golf is in, it can never come out. There are many operators, but few surgeons.—J. Rutherford Morrison.

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THE PHYSICIAN IN POLITICS

The older teaching was that a physician should devote himself strictly to his professional work, should keep aloof from other activities and particularly should shun politics as beneath his dignity. All of us know that this doctrine does not fit present day conditions.

The physician must be part of the community in which he lives and he must take part in its civic activities. He must not be a rabid politician, but in an earnest and dignified manner he must uphold the right as he sees the right. This is true in the every day affairs of the community and is particularly true in matters that affect public health and medicine as a science and as a profession.

It has been well said that the success of our form of government depends upon the intelligent use of the ballot. The physician shares with all other citizens the privilege and duty to exercise the franchise, but his duty is more urgent than that of the majority of citizens, because his education and training enable him, if he will, to cast an intelligent ballot.

The well educated and successful classes are always in the minority and they are able to maintain themselves in a position of ascendency only by the exercise of superior intelligence and skill: hence the need of an active interest in public affairs.

Social legislation is becoming more prevalent and if controlled by the unintelligent may undermine the work and the prestige of the professional classes. Legislation is the weapon resorted to to undermine our profession to its detriment. One act of legislation, the product of unworthy representatives, chosen without protest and opposition of our profession, may undermine the work of medical science for a century.

The physician must inform himself and cast his ballot if he is to discharge his common duty with all citizens, discharge his special duty as an educated and intelligent citizen and protect the practice of the profession from vicious legislation.

THE MEDICAL PROFESSION AND POLITICS

Should the medical profession make use of political influence to defend its most cherished institutions and ideals handed down by its medical forebears of the centuries, or should it stand by in smug self-sufficiency while quackdom is mustering its forces and instituting its attacks in every legislature in the land?

What with the introduction in legislative bodies of bills to open state institutions, devoted to the care of the sick and helpless, to Christian Science healers, chiropractors, osteopaths, faith curists, and members of other quack cults; what with legislative attempts to annul the inestimable advantages to humanity of vaccination against smallpox; what with the fight against school inspection and quarantine instituted by the cults; what with attempts of the enemies of legitimate medicine to establish chains of quack cults in state medical schools; what with the propaganda on the part of the anti-vivisectionists against animal experimentation, which has been of such inestimable advantage to the human race, and what with the concerted attempt over the United States on the part of societies of opticians to prevent ophthalmologists from prescribing lenses, thus throwing refractive work into the hands of mechanical glass fitters utterly ignorant of eye or general pathology, it is indeed high time for the regular medical profession to arise and assert itself.

Let the politicians in the legislatures over the country be made aware that they will be held to a rigid accountability to the medical profession for the introduction and passage of pernicious medical legislation, and be made to realize that the votes of the profession, *without regard to party lines*, will be cast solidly against the supporters of such legislation, and results will be forthcoming.

The medical profession of this country is an extremely influential body and can command many votes. It should be remembered in this connection that *votes*, and votes *only*, count with the average politician.

Let us make the members of the various legislatures once realize that the regular medical profession is carefully "taking notes" as to their connection with pernicious legislation against scientific medicine and the public health, and is prepared as a body to vote accordingly, and the interests of the quack cults will not be of such great importance to them.

Should the regular medical profession enter into politics then? The answer is evident.

—John M. Banister.

THE DOCTOR IN POLITICS

It is high time that the organized regular medical profession become more interested in the candidates seeking legislative honors, and acquaint each office holder, with the essentials for all who treat the sick:

1. A knowledge of the human body and its normal structures and functions.

2. A knowledge of all common diseases so as to know what disease is present.

3. A knowledge of the many remedial agents, ability to apply the one most needed.

Each legislator should be made to realize that the minimum education required in all civilized countries for those who treat the sick are:

1. Four years in a medical college.

2. Two years of college (including physics, chemistry, and biology).

3. One year's interneship in a hospital.

It would be a wise move to put one of the A. M. A. posters into the hands of each member of the legislature. It would be a constant effective plea—in fact, a compelling argument—for scientific medicine.

The Doctors of Medicine do not necessarily have to run for office, but can find time to investigate the candidates seeking legislative honors and throw our united support to the men who believe in regular medicine. We should have a statewide *offensive* campaign instituted before the primaries and regular election, rather than rely on *defensive* measures to combat this vicious legislation at the eleventh hour.

If over the state of Nebraska, senators and representatives are elected who feel that the organized medical profession have helped place them in office and are watching their actions while the legislature is in session, the politicians will not lend such a ready ear to the cultists who are always present in great numbers to lobby for their personal interests.

Doctors of Medicine have been in a state of lethargy. Let us awaken and make our influence felt.

—Earl C. Sage.

THE NEBRASKA STATE TUBERCULOSIS ASSOCIATION

Nebraska has less pulmonary tuberculosis, according to national statistics, than any other state in the union. Every physician knows by his own community that this reputed freedom from tuberculosis is fictitious. The care of pulmonary tuberculosis does not interest the physician because it presents no diagnostic problem after a positive sputum has been obtained; because its prognosis is simple as well as brutal; and because its results are often one to three years distant. Physicians have become accustomed to expect prompt results in the treatment of the average clinical syndrome. Psychologically, the case of tuberculosis is left to the last by the physician in his rounds, largely due to the hopelessness of the condition and an inherent fear of contamination. Therefore, it is fortunate for the patient and for the medical profession that there exists such an efficient organization as the Nebraska State Tuberculosis Association.

The primary object of the association is to secure better health in the state by the education of the people in the prevention and treatment of the dread disease. $21,635.42 was raised last year for this purpose, solely by the sale of the Christmas seal in the state. And right here, let me ask—do we, as physicians, do our share in the Christmas seal sale, either in the purchase of seals or in aiding the seal chairman in our community? Yet, that little seal is the doctor's best ally in the preservation of public health. It is easier to keep a patient or a community well than it is to get them well. Last year the proceeds of the seal sale placed the modern health crusade in 1213 rural schools in Nebraska. 50,523 children in the state are performing their health chores every day. The influence of this work for health on the family can not be over-estimated. The physical tone of the family is elevated by the child. The physician's work is made easier, he is consulted earlier, and his instructions are more faithfully carried out. 171,585 pieces of literature were distributed, every one of them of value to the physician as well as to the layman.

The most active phase of the work occurs in the nursing department. Lincoln and Omaha are the only communities in Nebraska having nurses who devote their entire time to the treatment of tuberculosis. 6500 visits were made last year in the two cities. This work included the care of all contacts, institutionalizing of such cases as were willing, visits to those cared for in their homes, and finally, the maintenance of three tuberculosis dispensaries, where last year 1200 patients were induced to seek aid and advice. The visiting nurse, the school nurse and the public health nurse are doing this same work throughout the state in conjunction with their many other duties.

The exhibits at the State Fair in Lincoln and at the State Medical meeting in Omaha were distinct advances in publicity work both for the layman and for the profession. Many of the officers from the National Tuberculosis organization have been visitors and guests of the state for the purposes of survey and of holding institutes.

The eradication of tuberculosis from the cattle of the state is being accomplished rapidly and so thoroughly that it is no uncommon thing to find whole counties rated as 100% free of bovine tuberculosis. Is not 100% prevention and treatment among human beings at least just as important? There is only one answer to that question, of course, and the following are a few suggestions as to what might be done to bring about such a result.

1. Proper financing by increased Christmas seal sales under the guidance and influence of every physician in the state.

2. The establishment and organization of regular clinics in each community, by the physician, for the supervision of the subnormal child, tuberculosis suspect, contact, or proved case.

3. The undivided and generous support of the Public Health Nurse throughout the state.

4. The provision for institutionalization of every case of pulmonary tuberculosis, either in the State Tuberculosis Sanitarium at Kearney, or in County sanitaria.

5. Appreciation of and cooperation with the Nebraska State Tuberculosis Association and its Secretary, Miss Alice Marshell.

—F. W. Heagey.

THE NEWER TREATMENT OF DEMENTIA PRAECOX AND OF PARESIS

Following a Dry Clinic given to the members of the Elkhorn Valley Medical Society last month by the staff of the Norfolk State Hospital the following statement of the theory of the newer treatment of dementia praecox and of paresis was prepared for this Journal by request of the editor:

The theory of the treatment of dementia praecox with horse serum is based on a preliminary report of Robert S. Carroll, Asheville, North Carolina. Following out the theory suggested by him, consists in removing 20 cc. of cerebrospinal fluid and replacing an equal amount of inactivated horse serum producing an aseptic meningitis, with a tremendous production of leucocytes, which results in all cases—far more than is necessary to rid it from proteid which has been induced. This leaves an overplus of phagocytic energy in closest contact with neurone protoplasm, energy available for possible scavenger and reparative action on brain tissue, probably on the choroid plexus. Through this method of approach Nature's most perfect remedy, her own reparative cells, can be actively and persistently kept in contact with previously injured brain protoplasm. Deadening and damaging toxins may thus be neutralized; and if regenerative processes within the brain are possible, the most perfect stimulation to that end is thereby provided.

Technique as used in this hospital, is as follows: 20 cc. of cerebrospinal fluid is withdrawn by means of cisternal puncture when 20 cc. of inactivated horse serum procured under strict aseptic precautions is injected by gravity. Sterile normal horse serum is inactivated by incubating at 65 degrees C. for one hour. In case rash appears, it can be taken care of by alkalinization and saline purgation, and if excessive itching, it may be controlled by use of morphine. Temperature will rise to about 101 and in from two to three days headaches develop which can be controlled by putting the patient to bed without a pillow for a few hours and treating his headache symptomatically with ice cap and salicylate. Anaphylactic reactions may occasionally occur which will render tolerence tests a wise preliminary, although these reactions respond promptly and favorably to hypodermic injections of one to one-thousand adrenalin repeated every two or three hours if necessary. A dangerous secondary inflammatory reaction will probably follow unwise subsequent serum injections when the spinal fluid remains overburdened with the toxic detritus of former treatments.

Theory of the treatment of malarial inoculation: The following treatments have been suggested by the paper of Goeckerman, O'Leary, and Parker, in Treatment of Neurosyphilis by Malaria, (Archives of Dermatology and Syphilology. 13: 317-318, March, 1926).

It has been suggested that antagonism may exist between the *plosmodium malariae* and the *spirocheta pallida* as a result or consequence of which the reaction to malarial infection brings about a production of antibodies having some degree of effectiveness. This is purely speculative and rests upon no demonstrable basis.

Another view is that as all body processes including those concerned with antibody production are increased in velocity in the presence of fever, so that syphilitic foci may be stimulated to more actively produce antibodies. This is also purely empirical.

Still another hypothesis is that malarial parasites are prone to seek lodgment in the minute capillaries of the brain. These vessels are hence apt to become more permeable and so permit protective substances to enter the brain more easily from the blood.

Probably the majority of observers, however, attribute the effects entirely to the high fever induced. The "modus operandi," however, remains unexplained, for while Weichbrott and Jahnel found that in rabbits a complete disappearance of the spirochetae from scrotum, could be brought about by exposure to temperatures of 42 to 44 degrees C. (107.6 degrees to 110 F.), repeated not less than three times; Bunker and Kirby state that the thermol death point of spirochetae pallida at least in general paralysis is 56 degrees C. continued for ten minutes, although the organisms fail to grow in temperatures above 40 to 41 degrees C.

The observation of Hines is of some interest in this connection. Nine days after his arrival from Santo Domingo a man of 35 was admitted to the hospital with symptoms of severe malarial infection, the parasites of the aestivoautumnal variety being found in the blood in large numbers. The cerebro-spinal fluid was bloody and gave a strong positive complement fixation reaction in amounts as small as 0.1 cc. Death occurred twelve days after admission. Microscopically the capillaries of the brain were shown to be plugged with large numbers of parasites which were also found in the adventitial spaces. There were in addition definite histological evidences of syphilis. The lesions, however, showing signs of alteration as a result of the malarial infection.

Von Wagner's New Treatment of General Paralysis: A non-treated case of tertian malaria is selected while the malaria patient is in the midst of an attack of fever. 2 cc. of blood are removed from his arm and injected into the skin of the paralytic patient's back. After a period of one to two weeks the injected patient develops chills and fever. The temperature may rise to 103-105 degrees F. and even higher. The patient is permitted to pass through ten to twelve such attacks without being given quinine. Then quinine is administered in doses sufficient to check malarial activity.

The combined method of inoculation imitating the movement of the anopheles mosquito comprises the intramuscular, subcutaneous, intracutaneous and extracutaneous inoculation of malarial blood. This is accomplished by introducing the needle at first deeply into the muscles and withdrawing it slowly after each inoculation until the last 15-20 drops are injected on the skin and inoculated by scarification at the internal angle of scapula or buttocks. If this method fails the injection may be made intravenously.

When the malarial paroxysms develop the patient is permitted to have ten or twelve paroxysms before the course of the disease is controlled by quinine, although some are permitted to have great numbers.

Occasionally spontaneous cessation of the paroxysms occur before this number has been reached and in such instances the use of injections of milk and antityphoid vaccine has been suggested to provoke them.

Some individuals seem refractory to inoculation. Perhaps this is due to errors in technique.

The multiplication in man is said to be a-sexual as opposed to sexual cycle in mosquito. Transmission of the disease from inoculated individuals need not be feared and precautions to prevent it are unnecessary but until this is established, careful protection of the patients are advisable by screening. There is still disagreement as to whether this treatment should be combined with specific remedies.

After the patient has had the desired number of chills, quinine in five gr. doses is administered for a period of three days and a blood smear taken. If parasites are still present the quinine is continued until three negative smears are found when quinine is discontinued. The patient is then put on a liberal and nutritious diet along with iron and tonic to build up the patient.

RESULTS OF HYPOGLOSSOFACIAL ANASTOMOSIS FOR FACIAL PARALYSIS IN TWO CASES

Dr. Alfred Brown, Omaha, in a paper presented before the Western Surgical Association, and published in *Surgery Gynecology and Obstetrics, May, 1926, pages 608-613,* describes briefly the technique of anastomosis between the facial and hypoglossal nerves for the relief of facial paralysis following injury to the nerve, together with reports of two cases operated upon. The close relation between the cortical centers of the facial and hypoglossal nerves is discussed and their anastomosis is chosen as offering the best means, from a physiologic standpoint, for restoring normal contour of the face during rest, voluntary motion in the muscles, and emotional expression.

The operative technique is as follows: A careful dissection is made to expose the nerves, then anastomosis between the proximal end of the hypoglossal and distal ends of the facial is done, using very fine silk sutures passed through the sheath of the nerves only. Next an anastomosis between the proximal stump of the descendens hypoglossi and distal stump of the hypoglossal nerves is done, in order to restore motion to the paralyzed tongue. Healing was by primary union and patients left the hospital in ten days.

The operation is only the first step in the treatment. Cooperation of the patient is stressed as being absolutely essential to good results. Massage and electricity by use of a small faradic battery are begun ten days after operation. One electrode of the battery is held in the hand, the other placed below the lobe of the ear. After sixty days a twitch is felt in the muscles in front of the ear when the battery is used. After ninety days the patient can bring about the twitch by moving the tongue about and pressing it against the lingual surface of the teeth. The patient should practice daily facial movements in front of a mirror, always keeping within the limits of muscle fatigue. The amount of restoration of emotional expression depends on faithful practise and mentality of the patient.

Photographs of both patients taken before and more than six months after operation in various poses, show marked improvement both in facial contour and voluntary muscle control. No operation is to be done until six months have elapsed since the beginning of the paralysis following injury to the facial nerve.

—Geo. B. Potter.

EDITORIAL PARAGRAPHS

What many medical society meetings lack these days is the dynamic in leadership.

The first native English speaking American to receive the degree of Doctor of Medicine was Dr. William Bull of the South Carolina colony. He was graduated at Leyden and practiced in his native colony until the close of the Revolution. He died in England.

The Medical Society of the County of Kings, Brooklyn, is admitting laymen to associate membership. Why not? Have we not been too exclusive in our medical society fellowship, always? What harm can it do a layman to hear a scientific dissertation or the discussion thereto? The laity think there is something mysterious about medicine and what are we doing to the contrary to enlighten them?

The doctors' wives, when accompanying their husbands to county or district medical society meeting are pretty sure to be switched off to a movie, or a card party or some equally silly thing, to entertain them while the doctors' meeting is in progress, when as a matter of fact these doctors' wives would like to attend the scientific session with their husbands. Try the suggestion at the next meeting of your county or district society.

Exception has been taken by the organization concerned to a portion of an article in the May Journal which reads "an entirely unchristian and un-scientific faith." Two interviews with the editor have resulted from the phrase quoted, both interviewers coming from a distance. This demonstrates that the Nebraska State Medical Journal has a variety of readers. It also demonstrates the wisdom of the proposition advanced by a member of our publication board, that it is a mistake in medical journalism ever to refer to cults.

In these days when we are glibly talking about the balanced ration, vitamines, etc., and while many of us think the dietetic millenium is almost at hand, along comes Stefansson, who spent 11 years in the arctic (*Lieb, J. A. M. A., July 3, 1926*) and he avers, that on a salt free diet of fish, ovibos, caribou, polar bear and seal he remained in perfect condition through the entire period except that he suffered typhoid fever and pneumonia under which handicap he had himself conveyed 300 miles, a 27 days journey to a hospital, subsisting meanwhile on frozen meat. Health examination made since his return show him in perfect health. Verily, it appears that "Nature provides for a heap of things."

PROGRAM OF THE MISSOURI VALLEY MEDICAL ASSOCIATION — OMAHA AND COUNCIL BLUFFS

September 15, 16 and 17, 1926.

NEW MEDICAL ARTS BUILDING, OMAHA.

The program offered for the Omaha-Council Bluffs meeting of the Missouri Valley Medical Association has as its purpose intensive post-graduate work. It is not exclusively clinical, yet, it aims to provide in its contacts with the fundamental sciences, knowledge that is likely to prove useful in the day's work. Effort has been made to keep it free from all taint of self-aggrandisement or self exploitation; yet it was thought wholly desirable to give regional work of merit a place on the program. Is there not room for such a society and such programs in this great Missouri Valley? Why should we travel farther, spend more in time and money and get less? Come and help make the Missouri Valley the society it deserves to be.

WEDNESDAY, SEPTEMBER 15

9:00 A. M.
Auditorium Medical Arts Building

1. Some Diseases of the New Born. Fred Moore, M. D.
Des Moines, Iowa.
2. Subject to be announced..McKim Marriott, M. D.
Professor of Pediatrics and Dean of Washington University College of Medicine,
St. Louis, Missouri.
3. Diseases of the Gall-Bladder...Harry Dahl, M. D.
Des Moines, Iowa.
4. Surgical Aspects of Goitre...Charles Ryan, M. D.
Des Moines, Iowa.
5. The 1925 Epidemic of Poliomyelitis in Omaha ....B. C. Russum, M. D.
Of the Department of Physiology, Creighton University College of Medicine, Omaha, Nebr.
6. Observations Upon Morphology of Staphylococci and Other Organisms.........................James F. McDonald, M. D.; John T. Little, M. D.; Ernest Rickensteiner, M. D.
Of the Department of Physiology, Creighton University College of Medicine, Omaha, Nebr.

2:00 P. M.
Auditorium Medical Arts Building

7. Clinic — Demonstration of Pediatric Cases of General Interest......McKim Marriott, M. D.
Professor of Pediatrics Washington University College of Medicine, St. Louis, Missouri.
8. Influence of Diet on the Treatment of Cardiac Failure....................F. A. Smith, M. D.
Professor and Head of Department of Theory and Practice of Medicine, University of Iowa College of Medicine, Iowa City, Ia.
9. Clinical Interpretation of Some Unusual Sugar Tolerance Responses........J. D. Boyd, M. D.
Instructor in Pediatrics, University of Iowa College of Medicine, Iowa City, Iowa.
10. Report of Reconstruction Work of the Upper Extremities................A. Steindler, M. D.
Professor and Head of the Department of Orthopedics, University of Iowa College of Medicine, Iowa City, Iowa.
11. Conservative Treatment of Eclampsia...................................E. D. Plass, M. D.
Iowa City, Iowa.

8:00 P. M.
Auditorium Medical Arts Building.

12. Experiments in Focal Infection and Elective Localization — Resume, Newer Findings and Clinical Application. E. C. Rosenow, M. D.
Professor of Experimental Bacteriology, The Mayo Foundation of the University of Minnesota, Rochester, Minnesota.
13. Experimental Evidence for the Relation of Dental Infection to Systemic Disease ....Russell Haden, M. D.
Professor of Experimental Medicine, University of Kansas, Kansas City, Kansas.

THURSDAY, SEPTEMBER 16

9:00 A. M.
Council Bluffs Clinic

Transportation to and from Council Bluffs Furnished by the Omaha-Council Bluffs Medical Profession.

14. Clinic-Orthopedics..........Karl Werndorf, M. D.
Of the Council Bluffs Clinic, Formerly Professor of Orthopedic Surgery, University of Vienna, Austria. Council Bluffs, Ia.
15. Clinic — Genito-Urinary Diseases.............................Nathaniel G. Alcock, M. D.
Professor of Genito-Urinary Surgery, University of Iowa College of Medicine,
Iowa City, Iowa.

16. Surgical Problems of the Upper Abdomen... ....G. G. Cottam, M. D.
Sioux Falls, South Dakota.

2:00 P. M.
Auditorium Medical Arts Building.

17. Clinic — Demonstration of Dermatological Cases....................W. A. Pusey, M. D.
Professor Emeritus of Dermatology, University of Illinois, Chicago, Illinois.
18. How Far Has the Newer Work on Bright's Disease Helped Us in Diagnosis and Treatment?...........Hilding Berglund, M. D.
Professor of Medicine, University of Minnesota College of Medicine, Minneapolis, Minn.
19. Anatomy of Trigeminal Nerve from the Standpoint of Alcoholic Injection........
Thomas L. Houlton, M. D.; H. N. Boyne, M. D.
Of the Department of Anatomy, Creighton University College of Medicine, Omaha, Nebr.
20. Some Observations Upon Patient in the Revolving Chair and Their Clinical Significance.........James F. McDonald, M. D.
Of the Department of Physiology, Creighton University College of Medicine, Omaha, Nebr.

6:30 P. M.
Field Club, Omaha, Nebraska.

Not a banquet — merely a dinner, short addresses by the president of the association, by W. A. Pusey, M. D., Chicago, Illinois, ex-president of the American Medical Association, by Jabez N. Jackson, M. D.; president-elect of the American Medical Association, Kansas City, Missouri, and perchance by others; a good time, music, dancing, Randall's Royal Fontenelle Orchestra, cards, etc. Bring your wives and lady friends. The party will not be a success without them. Price of the dinner, $2.00. All the rest "free gratis for nothing". Ring master, Dr. Earl Sage of the Arrangement Committee for the Omaha-Douglas County Medical Society.

NOTE: The Omaha golf courses will be open to those who are inclined to jump the program in the interests of golf.

FRIDAY, SEPTEMBER 17
9:00 A. M.
Auditorium Medical Arts Building.

21. Clinic — Internal Medicine................ ....Hilding Berglund, M. D.
Professor of Medicine, University of Minnesota College of Medicine, Minneapolis, Minn.
22. Peritoneal Drainage.....C. W. M. Poynter, M. D.
Professor of Anatomy, University of Nebraska College of Medicine, Omaha, Nebraska.
23. Autopsy Surprises............A. J. Miller, M. D.
Professor of Clinical Pathology, University of Nebraska College of Medicine, Omaha, Nebr.
24. Fungous Diseases of the Skin, Experimental Studies of a Case.........J. T. Myers, Ph. D.
Professor of Bacteriology, University of Nebraska College of Medicine, Omaha, Nebraska.
25. Some Problems in Medical Education........ ....Irving S. Cutter, M. D.
Ex-Dean University of Nebraska College of Medicine; Dean Northwestern University College of Medicine, Chicago, Illinois.
26. Subject to be announced..Jabez N. Jackson, M. D.
President-elect of the American Medical Association, Kansas City, Missouri.

2:00 P. M.
Auditorium Medical Arts Building.

27. Bronchoscopic and Eosphagoscopic Cases of General Medical and Surgical Interest... ....Gabriel Tucker, M. D.
Of the Chevalier Jackson Bronchoscopic Clinic, Philadelphia, Pennsylvania.
28. Differential Diagnosis Between Coronary Artery Disease and Acute Abdominal Conditions...............H. P. Boughnou, M. D.
Instructor in Medicine, University of Kansas College of Medicine, Kansas City, Kansas.
29. Exophthalmic Goitre in Children........... ....L. P. Engel, M. D.
Assistant Professor of Surgery, University of Kansas College of Medicine, Kansas City, Kan.
30. Experimental Mouse Cancer.....C. Helwig, M. D.
Assistant Professor of Pathology, University of Kansas College of Medicine, Kansas City, Kansas.
31. The X-ray Visualization of the Gall-bladder: A Method of Determining Gall-bladder Disease and Function..................
E. H. Skinner, M. D.; Ira H. Lockwood, M. D.
Kansas City, Missouri.

THE SOCIETIES

Fifty medical men attended the **Elkhorn Valley Medical Society** meeting at Norfolk, August 2, under the presidency of the dynamic Dr. E. Willard Powell. The work outlined for the day was golf in the morning, luncheon and a short business session at the new Hotel Norfolk, dry clinics at the Lutheran hospital and Norfolk State hospital, banquet, Hotel Norfolk, 6:30, followed by a program of 4 papers. The program planned worked out well. Among the cases shown and discussed at the dry clinic at the Lutheran hospital were, a case of Banti's Disease, carcinoma of bladder and contiguous structures, a case of brain abscess several months after a mastoidectomy. At the Norfolk State hospital the dry clinic centered for the most part around the newer methods of treating dementia precox and paresis. About fifteen cases were presented.

(See editorial The Newer Treatment of Dementia Praecox and of Paresis).

Forty-eight physicians and two visiting ladies sat down to the dinner in the ball room of the new hotel after which the following papers were presented:

Dr. John Buis, Pender, "Rupture of the Spleen and Report of Cases"; Dr. H. Dey Meyers, Howells, "Treatment of Pertussis, with Special Reference to Vaccine"; Dr. D. D. King, York, "Periodic Health Examinations"; Dr. F. A. Long, Madison, "Economic Problems of Medicine".

That these were considered live subjects was evidenced by the free and frank discussion accorded the first three papers. The paper on pertussis vaccine was discussed by ten persons — an unheard-of record in discussions.

Resolutions of respect and condolence on the death of Dr. W. R. Peters, Stanton, were passed and copy ordered sent to the family of the deceased.

The "Elkhorn" society meetings will hereafter occur only in fall.

Dr. E. W. Powell, Omaha, was reelected president and Dr. E. L. Brush, Norfolk, was made secretary-treasurer and Dr. John Buis, Pender, and Dr. Claude L. Wills, Madison, were elected vice presidents.

The meeting was considered a great success — as one prominent member expressed it — "the best I recall for many, many years."

The **Madison, Stanton, Pierce and Antelope Counties Medical Society** held the August meeting at Tilden, on the 11th. Medical men, their wives and dentists to the number 48, sat down to the dinner which preceded the scientific program. Dr. Clyde Moore, Omaha, spoke on "The Diarrheas of Children" and Dr. C. R. Kennedy, Omaha, gave a lantern slide talk on "Urology".

HUMAN INTEREST TALES

A Doctor Murphy of Omaha, has located at Emerson.

Dr. E. C. Henry, Omaha, had a midsummer trip to Wyoming.

Dr. J. R. Taylor, Sidney, visited clinics in Chicago during July.

Dr. and Mrs. George Pratt, Omaha, spent a month in Estes Park.

Dr. J. W. Miller, Gibbon, has been ill and under hospital care in Omaha.

Dr. and Mrs. Oliver Everett, Lincoln, spent part of the summer in Colorado.

Dr. and Mrs. J. V. Begthol, Hastings, motored to Minnesota lakes in August.

Dr. B. R. Farner, has become associated with Dr. A. G. Rasck, at Ainsworth.

Dr. F. G. Kolouch, Schuyler, visited the Black Hills country by motor recently.

Dr. and Mrs. J. H. Downing, Rising City, spent a vacation period in Colorado.

Dr. C. P. Fordyce, Falls City, spent a part of the summer at the Mayo clinic.

Dr. W. A. Bunten, Worland, Wyo., visited his parents at Pawnee City recently.

Dr. A. J. Ames, Potter, was slightly injured by the overturning of his car in July.

Dr. and Mrs. L. H. Lee, Seward, motored to the northern woods during August.

Dr. and Mrs. W. F. Callfas, Omaha, motored to Minnesota during the summer.

Dr. V. E. Berchtold, Omaha, has been added to the staff of the Grand Island clinic.

Dr. and Mrs. Perry Allerton, Tilden, had a two weeks outing in the Black Hills.

Dr. C. C. Telleson and family, Wynot, visited Mrs. T's people at Heron Lake, Minn.

Dr. and Mrs. C. C. Johnson, Lincoln, spent two weeks in Minnesota during July.

Dr. John Harger and family, Chicago, visited friends at St. Edward in August.

Dr. M. Hoops, for several years in practice at Ainsworth, has moved to Springview.

Dr. and Mrs. J. D. Taylor, University Place, spent a month in the Colorado woods.

Dr. F. H. Kinyoun, Omaha, has returned from three months' special study in Vienna.

Dr. and Mrs. Otis Martin, Omaha, spent some time at the Minnesota lakes in August.

Dr. and Mrs. G. H. DeMay, spent the month of August in Colorado and Wyoming.

Dr. and Mrs. F. W. Luhman, Pender, motored to Manitowoc, Wis., to visit relatives.

Dr. and Mrs. Frank Conlin, Omaha, visited at Madison, Wisconsin, during the summer.

Dr. H. G. Morris, Newman Grove, spent a month in the Chicago clinics during midsummer.

Dr. L. B. Rider, has located at Alma, and has become associated with Dr. W. C. Bartlett.

Dr. Edward Bernaker, New York City, visited his parents at York the latter part of July.

Dr. and Mrs. A. J. McArthur, Broken Bow, have opened a maternity hospital at that place.

Dr. Fred Fouts, Central City, who has been ill in a Grand Island hospital is now convalescing.

Dr. and Mrs. F. A. Barta, Ord, spent part of the summer in Minneapolis and points in Iowa.

Dr. and Mrs. J. G. Stone, Sutton, have gone to Europe expecting to return early in September.

Dr. A. P. Furgason and wife, Lincoln, toured Nebraska and South Dakota during midsummer.

Dr. F. W. Boland, formerly of Howells, has become associated with Dr. E. L. McCrea, Table Rock.

Dr. and Mrs. C. C. Barr, Tilden, motored to the Black Hills and to Sheridan, Wyo., in August.

Dr. Howard D. Updegraff, Omaha, spent a month in Hollywood, Calif., with his mother who was ill.

Dr. E. H. Oelke, former Pierce physician, now located at Wheaton, Ill., visited at the former place in July.

Dr. R. E. Roche and family, Sidney, spent their vacation period at Dubuque, Iowa, and Rochester, Minn.

Dr. Harold Lammers, a Hartington boy, is ship surgeon on a tourist boat on a cruise around the world.

Dr. P. H. Salter and family, Norfolk, motored to Boston to be present at the graduation of the son at Harvard University.

Dr. Paul R. Siman, a Winside product, has been elected professor of anatomy in the University of Arkansas.

Dr. and Mrs. R. G. Henderson, Falls City, joined the Shenandoah, Iowa, Kiwanians for the six weeks trip to Europe.

The profession mourns with Dr. Frank G. Salter, Pierce, the loss of his wife, state president of the P. E. O. Sisterhood.

Dr. T. J. Lawson, formerly of Long Pine, now of Ainsworth, a member of the last legislature, is a candidate for reelection.

Dr. E. P. Bachle, Liberty, has retired from practice at that place and is being succeeded by Dr. D. D. Davis, formerly of Rushville.

An epidemic simulating typhoid, if not true typhoid, has occurred at Meadow Grove, traceable in all cases, to bathing in the river.

Dr. Norman J. Haverly, of the Navy Medical corps. native Omahan, is at present stationed at the American Legation at Pekin, China.

Dr. H. B. Morton, recent interne in an Omaha hospital has succeeded Dr. R. F. Jester, Doniphan, who is preparing to enter special work.

Dr. E. S. Wegner, for several years connected with the York clinic has become associated with Drs. Colburn and Wiedman in the Lincoln Children's clinic.

Dr. W. L. Shearer, Omaha, attended the International Dental Federation and the American Association of Oral Plastic Surgeons at Philadelphia, in August.

Nebraska physicians on the program of the Wyoming State Medical society, in July, were Dr. A. R. Mitchell, Lincoln, and Drs. Palmer Findley, C. A. Roeder, and J. M. Patton, Omaha.

Dr. S. R. Hopkins, located at Hastings since 1912, has reengaged in practice in Omaha. Dr. Hopkins has recovered from a protracted illness by which he was disabled for several years.

Dr. M. E. Grier, Omaha, has returned to continue his practice after having completed a nine months' postgraduate course in obstetrics and gynecology at the University of Pennsylvania.

Dr. J. W. Thomas, formerly of Weeping Water, who has just returned from a nine months' stay at the eye, ear, nose and throat clinics of Vienna, has become associated with Dr. S. G. Zemer, Lincoln.

On the program of the Upper Des Moines Medical Society, Lake Okoboji, August 17 and 18, were the following Omaha men: Drs. Edwin Davis, H. M. McClanahan, Harold Gifford and Victor E. Levine.

Homesick for his native Nebraska, Dr. Lucien Stark and family, now of Asheville, N. C., motored to this state in July, for a visit, screened behind the artfully camouflaged explanation that his property interests needed his attention.

Dr. Palmer Findley, with his three sons, toured the Rocky mountain region from Yellowstone to Zion National park during July. On the return trip near Elm Creek, the party was the victim of an attempted hold-up by masked men.

Dr. Nancy Catania, a young woman of Italian parentage was graduated from the Nebraska University College of Medicine this spring and on August 1st, took up work as interne in the Lincoln General hospital. She is the first woman interne in a Lincoln hospital.

NECROLOGY

Oscar S. Hoffman, Omaha; Bellevue Hospital Medical College, 1876; widely known and much loved practicing physician in Omaha since 1884; professor of Dermatology in the former Omaha Medical College and in its successor the Nebraska University College of Medicine, when first established in Omaha; member, Nebraska State Medical Association; died of organic heart disease after an illness of two years, July 23, 1926, aged about 70 years.

Dr. Hoffman was a thorough student and a rare character. Following his graduation he spent several years in European clinics and he made many trips to Europe for study after coming to Omaha. The doctor had a very delightful personality, always enjoyed a very high type of general practice in the city of Omaha and was unusually successful.

Robert P. Jensen, Long Beach, Calif.; Creighton University College of Medicine, 1896; practitioner at Omaha for some years before locating at Long Beach; died the latter part of July after a brief illness, aged about fifty years.

BOOK REVIEWS

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1925. Cloth. Price, postpaid, $1.00. Pp. 90. Chicago: American Medical Association, 1926.

This volume contains the reports of the Council on Pharmacy and Chemistry that have been adopted and authorized for publication during 1925. Some of these reports have appeared in The Journal of the American Medical Association. Others are now published for the first time.

The annual volumes of the "Council Reports" may be looked upon as the companion volumes to New and Nonofficial Remedies. While the latter describes the medicinal preparations that are found acceptable, the former contain reports on the products that were not accepted. The present volume contains reports on the following products which the Council denied admission to New and Nonofficial Remedies: Agrilin; Benzyl Viburnum Compound; Bichloridol and Salicidol; "Colloidal Gold"; Diabesan; F. & R.'s Genuine Gluten Flour; Geroxide; Hoyt's Gluten Bran Flakes; Horse Dung Allergen-Squibb, House Dust Allergen-Squibb, LePage's Glue Allergen-Squibb and Street Dust Allergen-Squibb; Incitamin; Liposan; Loeser's Intravenous Solution of Calcium Chloride; Loeser's Intravenous Solution of Sodium Thiosulphate; Mercodel; Orargol; Parathyroid with Calcium; Pollen Extract Gramineae, Pollen Extract Chenopodiaceae, Pollen Extract Ambrosiaceae and Pollen Extract Artemisias-P. D. & Co.; Rayminol; Rheumeez; Mitysol; Some Wagner's Preparations; Tablets Calcreose with Iodine; Digifortis; Trepol and Neotrepol; Tricalcine; Viriligen, Glandular Comp. and Pineal Comp.; Vitalait (Vitalait Laboratory, Inc., Newton Centre, Mass.) and Vitanol.

The volume also contains reports on products which were included in former editions of New and Nonofficial Remedies but which will not appear in the 1926 edition because they were found ineligible for further recognition.

The volume contains reports of a general nature; for instance a report on the use and utility of digestive enzymes in therapeutics and a preliminary report on spleen and red bone marrow.

Physicians who keep fully informed in regard to the value of proprietary remedies will wish to own this book.

NEW AND NONOFFICIAL REMEDIES, 1926, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1926. Cloth. Price, postpaid, $1.50. Pp. 459+XLIII. Chicago: American Medical Association, 1926.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually provides the American medical profession with disinterested critical information about the proprietary medicines which are offered to the profession and which the Council deems worthy of recognition.

An examination of the preface shows that in addition to inclusion of the new drugs which were accepted during the past year, the book has been extensively revised. Many of the preparations listed in the previous edition have been omitted and the descriptions of others have been revised to bring the statements into accord with present day knowledge. Among the products that were accepted during the past year and which are included in the new edition are scarlet fever toxin preparations used to determine susceptibility or to establish immunity and curative scarlet fever antitoxin; a parathyroid extract of determined effect on the calcium content of the blood serum; two antimony compounds for use in trypanosomic infections; tryparsamide, developed in the Rockefeller Institute for Medical Research; tetraiodophthalein sodium for the visualization of the gallbladder and hexylresorcinol, developed by Veader Leonard.

The book contains a cumulative appendix (printed on buff paper), which is a list of references to reports of the Council and to other publications dealing with articles not described in New and Nonofficial Remedies. This appendix is thus a valuable and quite extensive bibliography of proprietary and unofficial preparations.

In reference to the work of the Council on Pharmacy and Chemistry, the Board of Trustees of the American Medical Association in their report to the House of Delegates stated that the success of the Council's endeavors will depend less on the work done by the Council than on the support that is given by the rank and file of the medical profession and that this support can be most efficiently given by physicians (and with fullest justice to themselves and their patients) by confining their use of proprietary medicines to those that have been found acceptable for inclusion in New and Nonofficial Remedies. The physician who desires to support the Council actively should therefore obtain a copy of the 1926 edition. Every physician has need for a book of reference such as this volume to which he may turn for trustworthy information with regard to proprietary medicines.

NEW COLOSTOMY BELT

The colostomy belt described by John W. Neely, Terrell, Texas (Journal A. M. A., April 7, 1926), consists of two parts; the first is the belt, which is made of two pieces of canvas joined by an elastic band. At one end of the belt are attached two small buckles, at the other end two narrow leather straps, which with the length of elastic make it easily and conveniently adjusted. In the larger piece of canvass there is inserted a metal ring about 4 inches (10 cm.) in diameter. This ring is intended to fit round the two ends of the intestine forming the colostomy. The other part is the colostomy cap, which fits the ring. To apply the belt, the cap is inserted into the ring and covered with from six to twelve strips of ordinary toilet paper, long enough to reach across the cap. The paper is then pushed into the recess of the cap with the fist and placed over the colostomy. When it is necessary to change, the patient simply grasps the paper by its ends and throws it into the toilet.

UPPER URINARY TRACT INFECTIONS

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ETIOLOGY OF PYELITIS*

LOTHAR F. EGEN, M. D.,
Hastings, Nebraska.

PREDISPOSING CAUSES

The anatomical and posteral environment of the kidney must be placed first among the predisposing causes of this disease before age, race or sex incidence.

The kidneys are in themselves evidences of the fact that man was originally an animal that walked on four feet, just as the position of the cecum, transverse colon, etc., are other evidences of this fact. Anatomically the pelvises of the kidneys form a funnel shaped sac with the ureters as the apex. In the erect position the lower portion of the pelvis is below the ureteral outlet and leaves potentially a pocket of static urine with all the perogatives of a cavity in the body poorly drained two-thirds of the time, it being admitted that stagnant urine in a body environment is prone to chemical and bacterial decomposition.

Age: One-half of all cases of upper urinary tract infection occur between 20 and 40.

Sex: About sixty-one per cent occur in women.

Sixty per cent are bilateral.

Race and color are of no significance.

Outside of these factors the predisposing causes of this type of infection may be grouped according to Kidd, in four classes; it being understood that there must be either some cause that lowers the resistance of the organs or some change in the number or virulence of the infecting organism.

(A) Causes which promoted bacterial invasion of the blood stream at a primary focus of infection:

1. Acute nose and throat infections or middle ears.

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*Part of a Symposium on Upper Urinary Tract Infections given before the Nebraska State Medical Association, Omaha, May 11-13, 1926.

2. Bowel infections.
3. Family infections — that is, carriers of bacteria.

(B) Causes which stir up bacteria already lying dormant in a primary focus:

1. Gunshot wounds, especially septic fractures.
2. Operations in septic fields, stitch abscess after appendicitis, after incision of the rectum, etc.
3. Bowel infections due to constipation, diarrhea, colitis, gastric ulcers, gall-bladder disease, typhoid fever and dysentery.

(C) Causes which lower the general resistance of the blood and tissue to bacterial invasion:

1. Physical over-exeration, mental and emotional exertion, exposure, chills, starvation, etc.

(D) Local, mechanical, physical and chemical causes which lower the resistance of the kidney and render it susceptible to infection by bacteria filtering through:

1. Stone in the kidney or ureter.
2. Congenital hydronephrosis.
3. Enlarged prostrate.
4. Stricture of the ureter.
5: Vaginal prolapse with cystocele.
6. Pregnancy.
7. Spanchnoptosis: (With floating kidney, twisted ureter, kinked ureter, etc.).

Cystitis itself is more apt to be secondary to pyelitis than causing it; and only very rarely can it be said to cause it by direct extension.

IMMEDIATE CAUSE

Immediate cause is, of course, some bacteria. The bacteria found in these infections are of all varieties but by far the most common is the colon bacillus, then the streptococcus. Of 100 cases of pyelitis probably 90 will be colon bacillus, 5 streptococcus and 5 all other varieties.

THE ROUTE OF INVASION

The route of invasion is practically always through the blood stream and there are many places from which it can become infected. When it carries the colon bacillus it is usually due to direct or secondary infection from the intestinal tract; when due to other bacteria, from focal infections in various locations as tonsils, teeth, vagina, uterus, nasal sinuses, etc.

Bumpus and Meisser of Mayo Clinic believe they can produce identical lesions in animals by infecting them with bacteria from teeth and tonsils of individuals suffering from urinary infections. This is the theory of selective action of bacteria.

The experiment of Embleton and Thiele in animals showed that when the urethra was traumatised and then infected with virulent bacteria they are rapidly absorbed into the lymphatics passed along the walls of the bladder and ureter and collected under the capsule of the kidney, then through the lumbar glands to the thoracic duct, thence into the blood stream.

In animals in which the thoracic duct was cut, the bacteria did not appear in the blood at all. The same investigators found that bacteria injected intraperitoneally appeared in the urine in 10 minutes to half hour in healthy animals. When the thoracic duct was cut they did not appear at all.

This discredited the theory that bacteria travel from the bladder direct to the kidney by the lymphatics.

The other routes of infection are: (1) Ascent of the urethra, bladder and ureters. Draper and Braasch have proven this to be true, but only very rarely and then only in cases of prolonged cystitis with great change and destruction of the vesicle orifices and sphincters.

Direct infection from colon probably never happens except in the case of a fistula communicating, usually traumatic. More likely it would be from a perforating duodenal ulcer of which cases have rarely been reported. Accepting then the usual and common route of the infection as hematogenous, it is found that the bacteria come by way of the renal artery, pass to the cortex, escape through the glomeruli into the tubules and so to the renal pelvis.

To conclude, we can say that the etiology of the upper urinary tract infections is always bacterial in nature. Either the organism or its toxin. It is nearly always by way of the blood stream and is made possible by either an overwhelming number, a special verulance, and selective action or some anatomical or functional damage to the organ which in a general sense is usually obstructive.

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GOD GIVE US MEN

"God give us men. The time demands
Strong minds, great hearts, true faith and willing
hands;
Men whom the lust of office does not kill;
Men whom the spoils of office cannot buy;
Men who possess opinions and a will;
Men who have honor; men who will not lie;
Men who can stand before a demagogue
And damn his treacherous flatteries without winking;
Tall men, sun crowned, who live above the fog
In public duty and in private thinking."

—J. G. Holland.

Doctor said, under the circumstances this sounded very funny to those around the patient.

"Recently I was called in to see a child, only a few weeks old, and on arriving there found the mother very much worked up over the illness of the child. This child happened to be the ninth one she had given birth to and she had lost several by death. She said:: 'Doctor, do you think my child is going to die?' He told her there need be no fear, as the trouble wasn't serious. She said: 'Thank God, I don't mind having children, but I hate for them to die, as funerals are so expensive'."

CLINICAL DIAGNOSIS OF SECONDARY INFECTIONS OF THE UPPER URINARY TRACT*

ARTHUR D. DUNN, M. D.,
Omaha, Nebr.

As an introduction to a discussion of the topic assigned me — Clinical Diagnosis of Secondary Infections of the Upper Urinary Tract — it is fitting to quote and paraphrase a saying of Charcot: "One diagnoses easily that which one has already seen." This axiom elaborated and applied to our subject might well read: "A diagnosis of the existence of an infection of the upper urinary tract is easily hit upon provided that we suspect it sufficiently to make the examinations necessary to prove or disprove its presence". Failure to suspect and then push the suspicion of upper urinary tract infection to its logical conclusion has resulted in many uselessly scarred abdomens. Seventeen years ago I saw a woman who had had her appendix and an ovary removed, a gall-bladder drained and adhesions broken up without any relief from symptoms rising from a right pyelonephritis. Cystoscopy with ureteral catheterization was advised on the basis of the clinical diagnosis, looking to nephrectomy as a cure for her ills. She returned to her surgeon who unceremoniously waived urological examination as non-essential scenery and performed nephrectomy. The patient luckily had a sound kidney on the left side and recovered from the trouble for which four useless operations had been administered. So far has clinical and urological diagnosis advanced in the past twenty years that abdominal operations for such obvious cases of upper urinary tract infection are becoming the exception rather than the rule and urological methods have become a part of established diagnostic procedure. That there are still cases beset with difficulties and failures justifies such an integrating review of the topic as this symposium attempts. Time forbids a detailed discussion of the clinical diagnosis of upper urinary tract infections. What I have to say will be considered under the following captions: Subjective and objective symptomotology, bacteriological diagnosis, diagnosis of the primary infection and remarks on diagnosis contributary to the evaluation of the patient as a whole.

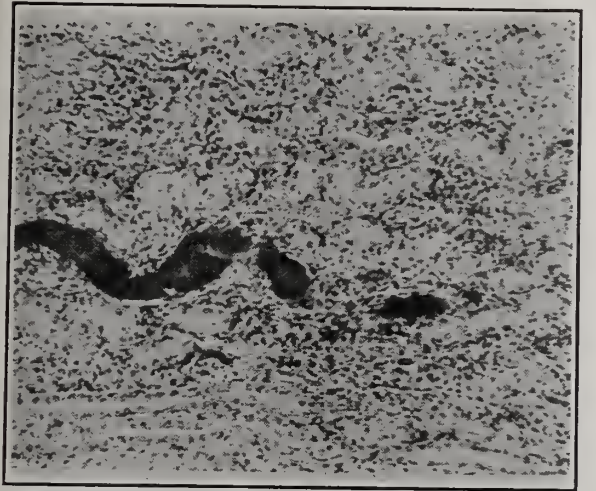

FIG. I. Marked focal nephritis in medulla with casts. This area is typical of the diseminiated lesions soattered throughout the medullae of both kidneys.

I.

The definitive subjective symptomatology is comprised in chills and fever, pain, and dysuria. So striking is the chills, fever and sweat sequence that in the days in which malaria was prevalent there was a tradition in one of our large hospitals that if plasmodia are not found in the blood look for stone in the common duct or for pyelonephritis. If pain and disturbed micturition are absent as not rarely happens early in the disease, symptoms of a general infection predominate and for want of a better diagnosis the trouble is called "flu" unless the urine is repeatedly examined. Even in the presence of considerable distress in the lumbar region this mistake is easily made, especially when the upper urinary tract infection has followed an upper respiratory infection. The pain, when characteristic, is aching or bursting in character, of maximum intensity in the lumbar region, and radiates to the abdomen and to the bladder. Renal colic may occur. The abdominal radiations or localizations may bring confusion, especially when the lumbar pain is of minimal intensity. Appendiceal, ovarian or cholecystic pain distribution and findings may be so well mimicked that the physician easily falls into error. Gastric symptoms such as nausea and vomiting are common. I once examined an excellent physician who was convinced from an analysis of his symptoms that he had an obstructive lesion at the pylorus; the trouble was stone and upper urinary tract infection; it was relieved only by removal of the stone and by nephrectomy later. A close analysis of the character of the pain and its distribution, tenderness in the costovertebral space, tenderness to kidney fist-percussion, occasionally a tender kidney or tumor on palpation; negative gastro-intestinal examination, and increased cell content in the urine will usually suffice to make the diagnosis. It should be emphasized, however, that only repeatedly negative urine examinations justify excluding kidney infection. Intermittent pyuria due to blockage is not uncommon and the absence of pus in the urine is often associated with exacerbation of symptoms. More frequent use of catheterized specimens in the female should be advocated, for pus cells in numbers do not belong to normal bladder urine. Hematuria, especially microscopic, is a common finding in the acute form. The microscope is most necessary to the clinical diagnosis of upper urinary tract infections, and the mistakes in this field would be materially decreased if the clinician made freer use of this instrument with his own eyes and not through the eyes of laboratory reports. It is to be noted that a polymorphonuclear leucocytosis is usually present and is helpful merely as it denotes the existence of infection. Painful micturition when present is helpful in focusing attention on the urinary tract, yet it must be remembered that dysuria may be present in pelvic, appendiceal or even in gall-bladder disease. After the existence of an acute or chronic upper urinary tract infection is established, the absolute localization of the infection and the extent of the local damage is the urologist's problem.

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*From a discussion on the above topic given in a symposium on Secondary Infections of the Upper Urinary Tract at the Annual Meeting of the Nebraska State Medical Association, May 11, 1926.

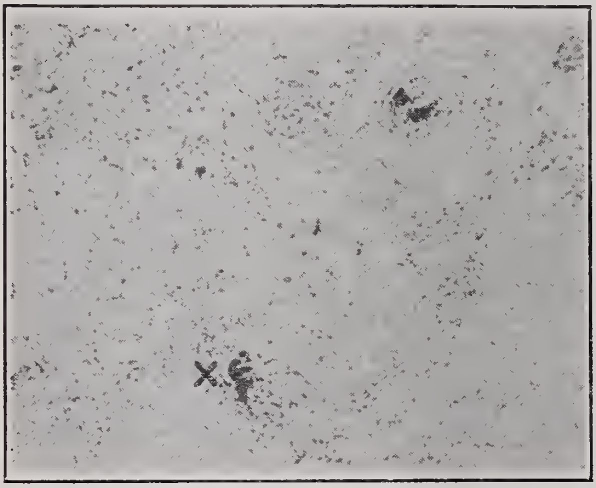

FIG. II. Typical cortical focal area with glomerulo nephritis; marked paranchymatous changes. The dark spots in the glomeruli are micro-organisms.

II.

Bacterial diagnosis is useful. Smears and culture examinations of aseptically collected specimens of urine (catherized in females) should be made. B. coli is the common "find" although it is probably a secondary invader as Bumpus and Meisser maintain. The view has been advanced, but not proven, by some observers that the close proximity of the colon, especially on the right side, may facilitate B. coli invasions via the lymphatics. Most secondary infections are considered hematogenous in origin; streptococci seem to be the common primary invaders; pneumococci, gonococci, staphylococci, the more occasional. Practically all pathogenic micro-organisms have been found exceptionally in upper urinary tract infections. Crabtree and Cabot* believe that practically all infections are hematogenous, the pus-producing organism selecting the cortex and the colon bacilli the medulla. These organisms are alleged to follow the paths of least resistance, the pus cocci towards the periphery often producing perinephritic abscesses, the B. coli to the pelvis producing pyelitis; the cortical affections may give singularly few urinary findings. However, the possibility of ascending infections via the lumen or the lymphatics is generally accepted. It is important in most urinary infections to make a reasonable search for tubercle bacilli as they are commonly the primary invaders and their presence may be clouded by the super-imposed effects of secondary invasion. Often animal inoculations are necessary to settle this point. Isolation of the invading organisms by culture should be done early so that if vaccines are desired later material may be available.

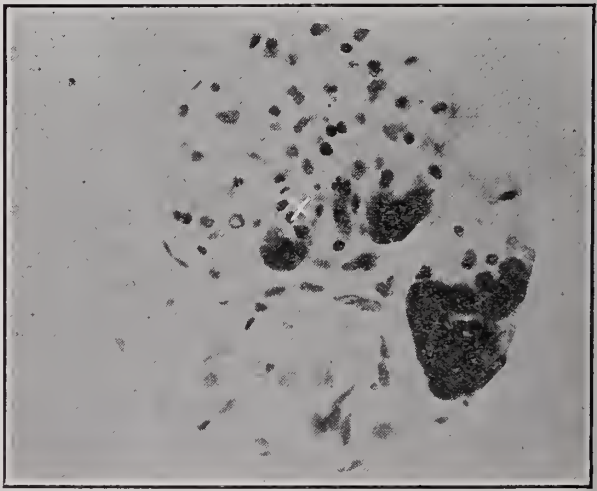

FIG. III. Close up of a glomerulus showing masses of micro-organisms. These can be made out at X.

III.

The diagnosis of the origin or the site of the primary focus of infection is of paramount importance because of obvious therapeutic corallaries. To be satisfied with the diagnosis — an upper urinary tract infection — without making an effort to know its origin is to "smear" the job.

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*Crabtree, E. Granville, and Cabot, Hugh, Colon Bacillus Pyelonephritis. J. A. M. A. 68, 590. February 24, 1917.

The frequency with which urinary tract infections follow upper respiratory tract infections is startling. A recent case illustrates beautifully the probable relationship of a latent tonsil infection to a urinary tract infection:

J. W. C., female, age 33, first complained of distress in the left lower abdomen February 21, 1926. This was not affected by eating, defecation or micturition. Although there had been for a time some increased frequency of micturition. She had felt badly for a week prior to the onset of pain in the left side. There was nothing in the family or past history of the patient that seemed to have any direct bearing on her present illness. Physical examination gave nothing of moment except tenderness in the left lumbar region. Examination of a catheterized specimen of urine was negative. Twenty-four hours later a catheterized specimen revealed pus +3. The pain had settled in the left lumbar region. The leucocyte count was 7,900. Radiograms of the urinary tract and teeth were negative. Dr. W. P. Wherry reported the sinuses negative and a low grade chronic tonsil infection. The patient was febrile and hospitalization effected ten days after the onset of the symptoms. Cultures of the urine showed B. Coli. Under rest and urinary antisepsis all symptoms rapidly subsided. On the nineteenth day after the onset of symptoms, after repeated observations, the tonsils were condemned and removed as a preventive measure, because of a history of occasional sore throats, too easy fatiguability, etc. Two months later the patient stated she felt better than she had for two years, and that a vague fullness and distress with nocturnal micturition, which had annoyed her almost constantly for two years had disappeared.

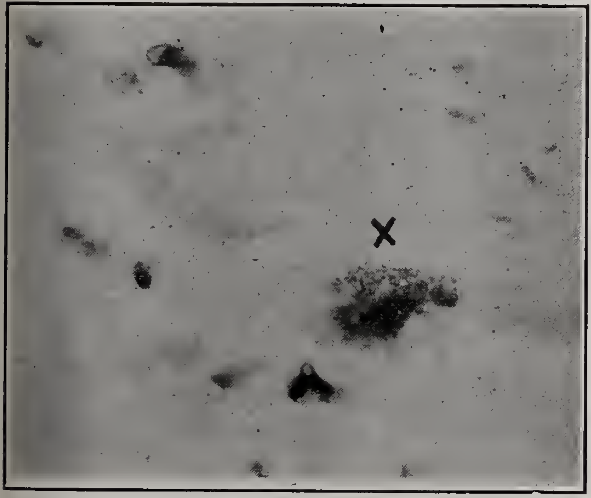

FIG. IV. Micro-organisms in the heart muscle.

Cultures were made from the tonsils on glucose brain broth, plated on agar and a broth culture of a coccus so obtained was injected into two rabbits. One rabbit died in 24 hours, the other was killed in six days. Both showed renal and cardiac lesions. Bacteria in large numbers were found in both kidneys and heart of the rabbit dying in 24 hours. A careful search failed to reveal micro-organisms in the lungs, liver, spleen or adrenals. Figs. I, II, III, and IV, with their legends show the profound pathological changes found in the kidneys and heart muscle of this rabbit.*

Obviously the clinical diagnosis cannot rest with the demonstration of the existence of a secondary infection of the urinary tract, but the primary source or sources for this infection must be sought out that they may be removed as a possible preventive and curative measure. Common among the primary foci are tonsils, teeth, paranasal sinuses and the mastoids. Occasionally the gall-bladder may act as a subfocal infection. The appendix, the pelvic genitalia in the female and the prostate and seminal vesicles in the male are occasionally primary infections. Localized infection anywhere in the body, such as osteomyelitis, phlebitis, empyema, pulmonary abscesses, carbuncles, adenitis, etc., may act as occasional primary sources for urinary tract infection. The association of subacute bacterial endocarditis and focal nephritis is notorious. It is well to bear this association in mind that operative procedures directed at renal symptoms only may not be uselessly instituted.

IV.

The clinical diagnosis is not complete with the establishment of the existence of an upper urinary tract infection, the organisms in the urine, primary foci, and their possible role, but the sick organism as a whole must be evaluated. The damages, general and local, must be assessed and the work capacity of the kidney estimated; the ability of the kidney to excrete water—water-balance—to excrete dye (phenolsulphonphthalein test); the levels of the urea nitrogen or non-protein nitrogen, and in certain instances of uric acid and creatinin should be known, especially if operative therapy is considered. Circulatory factors, especially cerebral and cardiac, call for study especially in elderly people who are common victims of urinary tract infections. Lastly, that intangible thing—immunity must be guessed at. I am convinced that deaths occur at times through too hasty operative intervention before a degree of immunity, all essential to surgical success, has developed.

CONCLUSIONS

To know and recognize the symptomatic possibilities of urinary tract infections is a long step toward the diagnosis of secondary infections of the upper urinary tract.

The responsibilities of medical diagnosis do not rest with establishing the existence of an upper urinary tract infection but the infecting organism must be determined, possible primary foci sought out and the patient as a whole evaluated.

—630 Bankers Reserve Life Bldg.

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*The experimental work was done in the Laboratory of Clinical Investigation, University of Nebraska College of Medicine. The above figures were shown as lantern slides.

UROLOGICAL DIAGNOSIS*

EDWIN DAVIS, M. D.,
Omaha, Nebr.

Mr. Chairman and Gentlemen: I wish to precede what little I have to say by seconding Dr. Dunn's statement with respect to the important relationship between focal infections and infections of the urinary tract. We should always bear that relationship in mind. Dr. Dunn has given us a thorough discussion of the clinical diagnosis of urinary infection, and under it he has included that which he is able to obtain from the patient by history, by physical examination, by what he can see and feel, and by laboratory tests.

These few brief remarks have to do with the information we obtain by use of instruments — in other words, urological diagnosis.

A brief consideration of urological diagnosis, in its relation to renal infections, may be best devoted to a discussion of the indications for urological examination; together with a description of the various procedures included in a complete urological investigation. Thanks to the cystoscope and its accessories, urology has come to be the most exact branch of surgery. While exploratory laparotomy is a relatively common procedure, surgical exploration of the kidney, or the bladder, is almost unheard of — or should be. The surgeon has the opportunity (if he chooses to avail himself) of obtaining an accurate preoperative diagnosis, and of knowing beforehand just what surgical indication exists. Certainly, accuracy in diagnosis is of the utmost importance.

To quote from Young, "Before beginning treatment the case should have been thoroughly studied in clinic and laboratory. Until type of organism, character of lesion, extent of invasion (kidney, bladder, prostate, vesicles or urethra), presence of complicating local conditions (obstruction, stricture, stone, ulcer, tumor, etc.), and the general condition of the patient (focal infections outside the urinary tract) are adequately known, intelligent treatment cannot be instituted."

There are certain symptoms, chief among which are frequent urination, burning urination, pyuria, fever and pain in the back or flank, suggesting an inflammatory renal lesion. I do not intend to imply that every patient presenting this symptom-complex should be subjected to a complete urological investigation, including cystoscopy, ureteral catheterization and pyelography. Certainly, excepting in unusual instances, urethral instrumentation is distinctly contra-indicated during acute inflammatory condition of the urinary tract, whether of urethra, bladder or kidney. Furthermore, it is well known that a large proportion of acute urinary tract infections improve spontaneously or under medicinal or general hygienic measures. To hastily subject a patient to a cystoscopic examination may be, therefore, not only unnecessary but damaging.

The tendency, however, is to err in the opposite direction; and to omit, or to postpone indefinitely the cystoscopic examination which might well clear up an obscure diagnosis. Bearing in mind the above-mentioned symptoms (frequency, pyuria, fever, pain in flank), complete urological investigation should not be too hastily carried out, but is definitely and clearly indicated in case of chronicity, or in case of intermittent recurrence of symptoms. Those preceding me have pointed out the etiologic relationship between kidney infections and extra-urinary foci of infection. Of greater importance, particularly in perpetuating these infections, are certain intra-urinary causes or predisposing factors, without the diagnosis and eradication of which any form of treatment is almost futile. I refer particularly to urinary obstruction in its various forms; and to calculus, new growth and tuberculosis; involving kidney, ureter, bladder or urethra. The continuation or the frequent recurrence of symptoms of urinary infection suggests the presence of one of these underlying causes, the diagnosis of which is essential. Of these causes, imperfect urinary drainage, due to any one of the various forms of obstruction, is by far the most important. Urinary stasis, with consequent persistent urinary infection, may be due to stricture, or to congenital stenosis or valve formation involving either urethra or ureter; it may be due to a calculus, or to an anomalous artery blocking the ureter, or to prostatic hypertrophy or carcinoma. In other words, it becomes essential not only to determine the presence of a urinary infection, but also the *underlying cause* of this infection.

By way of investigation, each patient presenting urinary symptoms is entitled to the ordinary general physical examination, as well as to the simpler methods of special examination, including palpation and percussion of the kidney and bladder regions, palpation and inspection of the external genitalia, digital examination of the prostate and seminal vesicles through the rectum, and a careful urinalysis. It is essential that the urine sample should be *examined while fresh* (in order to eliminate outside bacterial contamination), and that the urine be voided in *three* glasses if the patient is a male, or obtained by *cathe-*

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terization if female. The importance of these precautions in ruling out contamination from the lower urinary tract and the external genitalia is obvious.

Every patient, then, is entitled to the above simple diagnostic routine. Those patients with persistent symptoms (frequency, pyuria, fever or pain in flank), unexplained by the simpler diagnostic measures, should be subjected to such of the following procedures as may be necessary to establish a diagnosis:

1. X-ray examination.
2. Urethral catheterization.
3. Cystoscopy.
4. Ureteral catheterization.
5. Wax-tipped ureteral catheterization.
6. Pyelography.
7. Guinea pig inoculation.

X-ray examination of the urinary tract may be carried out in those cases where urethral instrumentation does not seem to be indicated, merely for the purpose of ruling out calculus. Enlarged kidney shadows, due to new growth or pyonephrosis may be shown by the x-ray; also metastases in the bones or lungs. In those cases in which instrumentation seems to be clearly indicated, in order to save the patient the expense of repeating the x-ray examination, this procedure should be postponed until ureteral catheterization has been carried out, in order that the renal pelvis may be injected if necessary.

Urethral catheterization has two purposes as far as diagnosis is concerned. The initial trial should be with a soft rubber catheter, which is simplest and safest. If this passes easily, the possibility of stricture is eliminated, and the presence or absence of a residual urine is determined. In case the patient is a female, by this procedure a urine sample, suitable for microscopical examination, is obtained.

Cystoscopic examination properly performed is harmless, and with an intelligent patient and in the absence of a strictured urethra or an acutely inflamed or contracted bladder, may be truthfully said to be almost painless. Even with a nervous and excitable patient or a painful bladder, by the use of sacral anaesthesia, cystoscopy may be safely made *literally painless*. Through the cystoscope we are able to determine the presence of inflammation, ulcer, stone, tumor, tuberculosis, foreign body, diverticulum, or any possible pathological condition within the bladder. The cystoscope also frequently shows us an intravesical prostatic hypertrophy, in patients with no enlargement to be made out by rectal examination. Careful inspection of the ureteral orifices for ulceration and edema, and for discharges of bloody or purulent urine, often gives us reliable information as to the condition of the two kidneys.

Ureteral catheterization gives us positive information as to which kidney (or whether either or both) is the source of pus or bacteria in the urine. Of equal, if not greater importance is the information gained through the ureteral catheters (by means of the phenolsulphenephthalein test) as to the *relative* function of the two kidneys. X-ray examination with opaque ureteral catheters in place tells us whether certain small suspicious shadows (possibly phleboliths or calcified glands) are, or are not, in alignment with the ureter.

The wax-tipped ureteral catheter is indicated where there is a negative x-ray and a clinical history typical or suggestive of ureteral calculus. Assuming proper technique, a scratched wax tip affords indisputable evidence, even in the face of a negative x-ray. It is well known that a fair percentage of ureteral calculi fail to cast a shadow, because of their chemical composition, or small size, or as a result of the patient's obesity.

Pyelography is to urology what a gastro-intestinal x-ray examination is to the study of abdominal lesions. Of the several solutions employed, probably sodium iodide is the best. A film made following the injection of a few cc of this solution (12%) through the ureteral catheter gives us an accurate picture of the outline of the renal pelvis and calyces, and of the course and calibre of the ureter. We are able to accurately localize small calculi, and to observe hydronephrosis, tuberculous abscess cavities, and filling defects due to new growths. This method also shows us dilatations, strictures, and angulations of the ureter, to say nothing of congenital anomalies of kidney and ureter. Many an unnecessary appendectomy has been performed because of symptoms due to an obstructive ureteral lesion, which might have been revealed by pyelography.

Guinea pig inoculation with the urinary sediment is indicated in those cases of persistent unexplained pyuria, particularly where the microscope shows pus cells but no ordinary bacteria, and in which tubercle bacillus stains of the urinary sediment have been negative.

To summarize, it may be stated that the present day conception of the etiology of urinary tract infections, is that there is usually an *extra*-urinary or systemic, or focal cause, as well as an *intra*-urinary or local cause. The intra-urinary causes may be, for the most part, grouped under the main headings, urinary stasis, calculus, new growth and tuberculosis, of which the former, urinary stasis, is by far the most important. It is essential that the patient with persistent or recurrent pyuria should receive a thorough general physical examination, as well as a complete urological investigation, for the reason that a cure is impossible without the diagnosis and removal of an existing intra-urinary cause.

MEDICAL TREATMENT, SECONDARY INFECTIONS OF UPPER URINARY TRACT*

CLYDE WADDELL, M. D.,
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The medical treatment of secondary infections of the upper urinary tract in its broader sense should include prophylaxis, diet, general medical care and the administration of such drugs as have been found to be of value.

This is the age of preventive medicine—at least at no time in the past has prevention of disease been given, by the medical profession, the consideration it is now receiving.

Nevertheless, we have a long way yet to go. If we are to prevent secondary disease of the upper urinary tract, as well as numerous other primary and secondary diseases, we must educate people to go to their physicians at regular intervals for complete physical examinations.

The dental profession has succeeded in convincing a large percentage of our population that they should have their teeth examined at definite intervals. This is an important progressive step in prevention of disease.

But, the teeth are not the only important organs of the body. There should be a campaign of education by the medical profession to convince people of the value of regular complete physical examinations—and then these examinations should be thoroughly made.

A physician can no longer count the pulse, take the temperature, look at the tongue and write a prescription and be considered as practicing efficient medicine.

We believe that there is nothing that has so retarded the growth of confidence of the public in the medical profession and so fostered the development of quackery and fads as inexcusable errors in diagnosis and failure to find easily discoverable pathology, because of insufficient examination.

Truly our medical sins of omission are greater than those of commission.

The first step, then, in the prevention of secondary disease of the upper urinary tract is the prevention of primary foci of infection in any part of the body and if such infection has already occurred the removal of all such foci if possible. It consists further in the correction of all those conditions which predispose and directly or indirectly cause infection of these parts.

Dr. Guy Hunner states that defective drainage from strictured ureter was an important factor in 90% of a series of 500 cases of chronic infections of the kidney pelvis, and, that even in acute pyelitis, the infection is usually secondary to a cystitis with swelling of the ureteral orifices with stasis above and secondary infection of the kidney urine, either by extension or more probably through lymphatics or vascular channels.

It would seem, if this is true, that every case of pyelitis should be under close observation and, while we believe that the average case of acute pyelitis should be looked upon as a medical rather than a urological or surgical problem, yet we do not believe that urological investigation should be too long delayed. If we are to prevent kidney destruction we must early find the cause in the particular case and remove this cause.

On the other hand, we have known of instances where there were marked evidences of focal infection in teeth and tonsils sufficient to be etiological factors which were ignored and urological investigation early begun in an endeavor to find a more local cause and where we believe the trauma, incident to the examination of an acutely inflamed urinary tract, markedly aggravated the condition.

In chronic pyelitis due to strictured ureter, dilation and the establishment of good kidney drainage is essential.

In pyelitis secondary to hypertrophied prostate in the male or pelvic inflammation in the female an early diagnosis and correction of the condition is important if irreparable damage to the kidney is to be prevented.

From a medical standpoint I would say that prophylaxis in this condition is most important. Careful regular examinations of our patients with early complete diagnoses and removal of foci of infection with proper recommendation by the general practitioner or internist for urological and surgical treatment will do much toward conservation of kidney and kidney function.

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Acute pyelitis is usually first seen by the general practitioner or internist and is, we believe, essentially a medical problem. The same general principles and care which apply to other acute infections naturally apply here. The patient should be put at rest in bed. In fact, rest is an important factor in both acute and chronic pyelitis. It economizes the patient's strength, lessens the energy demands for food and allows a light bland diet which is unirritating to the kidney. Since the skin is one of the important organs of fluid elimination it should be kept clean and active. The body surface should not be exposed to cold or sudden changes in temperature.

The diet should be bland and should contain the lower limit of proteid need. Milk has theoretically and by practical experience proven to be the best food for the basis of the diet. All foods which irritate the kidney in elimination are contraindicated.

In both acute and chronic pyelitis local measures of physical therapy should be applied. Hot fomentations or other methods of applying heat to the affected parts are indicated. The pain associated with the condition should be alleviated by these measures if possible. Good elimination from the bowels is very important.

Neglect here may result in malaise, headache, impaired appetite and throw an extra load upon the kidney. Constipation and its results increase the virulency of the colon bacillus and this organism has been reported as one of the most common in infection of the upper urinary tract.

If the distended and loaded bowel by making pressure on the ureters may facilitate the passage of the colon bacillus into the lymph or blood stream then measures to prevent and correct constipation are especially indicated. A regular time for stool together with proper diet and mechanical laxatives such as petrolatum or agar agar are helpful. At the beginning of the condition a dose of oleum riaini may be indicated.

The production of diuresis by the ingestion of large quantities of water 3 or 4 liters a day, for a few days is indicated in acute pyelitis or in chronic pyelitis provided that any obstruction to kidney drainage has been first corrected.

Since the colon bacillus like many other organisms had an optimium point of hydrogen ionization at which it grows the rapid changing of the reaction of the urine from alkaline to acid is helpful. This may be done by administration of sodium bicarbonate in large doses until the urine is strongly alkaline and then discontinuing that and giving calcium chloride in 2 or 3 gram doses four times a day. Ammonia chloride may be used in similar dosage.

In a series of experiments at the Mayo clinic by Henry Helmholz and Francis Millikin and by observation of cases they came to the conclusion that sudden changing the reaction of the urine from alkaline to acid inhibits the growth of the colon bacillus and improved the patient. This was more especially true in children. They also came to the conclusion that large doses of hexamethylenamin were of decided benefit in many cases. Large doses of urotropin should only be given when large amounts of water are being taken.

It is of importance to determine the organism which is predominating in the infection for if it is due to a streptococcus or staphlococcus, hexylresorcinal is indicated. Our experience with this drug has been limited and as to cure somewhat disappointing.

At the Inter-State Post Graduate Medical Association of North America which was held at St. Paul, Minn., we were much interested, although somewhat disappointed, in hearing Dr. Braasch of the Mayo Clinic discuss medical treatment of renal infections.

Because of his large experience we shall quote him here. "Much was hoped from the use of recent internal antiseptics. Hexamethylenamin has been practically discarded in infection of the upper urinary tract occurring after operations on the prostate.

Hexylresorcinol which theoretically is adapted to this type of urinary infection has been quite disappointing in its results. While symptomatic relief has been noted by some patients following its use in none has the infection been removed.

Intravenous treatment is probably most effective for acute renal infection which does not respond to the usual treatment. It is particularly efficient in the hematogenous type with evidence of systemic infection. Several of our patients who were to all appearance in serious condition made a miraculous recovery following the intravenous use of mercurochrome.

Mercurochrome seems to be the most efficient of the various drugs that have been advocated for internal use, but its toxicity is so great that it should not be used as a routine at least in the dosage that has been recommended. It should be employed only as a last resort and then, with the greatest precautions. That its employment is not without danger is shown by the death of two of our patients in a series of 200 intravenous mercurochrome injections.

Intravenous infections of gentian violet and acriflavine have produced doubtful results.

In occasional cases of chronic renal infection there has been marked improvement and apparent recovery following intravenous injection of neoarsphemamin.

Hexamethylamine when used intravenously in large doses is frequently of value in cases of acute renal infection is followed by no systemic reaction and can be employed as a routine.

The careful intravenous injections of Fisher's solution or normal sodium chloride solution is also of great value in treating acute renal infections." (Braasch).

Summarizing, we would say:

1. Prophylazis is of utmost importance in these conditions and we would emphasize regular complete physical examinations. All foci of infection should be removed if possible and all predisposing factors such as strictured ureters, renal and ureteral calculi, enlarged prostate in the male, or pelvic, pathology in the female corrected before irreparable kidney damage is done.

2. Rest, diet and general medical care aid greatly regardless of the special type of treatment required whether urological, surgical or medical.

3. The internist and general practitioner should realize that a large number of these cases must have examination and treatment by the urologist and surgeon if they are to make complete recovery and he should not procrastinate to the detriment of his patient.

4. Finally, we believe that after the treatment of causal factors intravenous therapy offers great possibilities and we fully expect that in the near future there will be developed substances which can with safety be introduced into the blood stream and which will be effective in overcoming these infections.

SURGICAL TREATMENT OF SECONDARY INFECTIONS OF THE UPPER URINARY TRACT*

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Surgical intervention in infections of the upper urinary tract naturally presupposes that routine treatment is inadequate or has failed, that sufficient progression of the pathological process has ensued to jeopardize the life of the patient. This may have come about through the inroad of a slowly progressive destruction or an acutely fulminating infection.

I have assumed in my assignment that drainage by the ureter catheter is a surgical procedure—minor perhaps, yet all too frequently forgotten in favor of the knife. The implantation of an indwelling catheter, or oft times the simple dilatation of the ureter by the mere passage of the catheter brings striking subsidence in an otherwise grave picture. There is no issue of contention with its use in chronic infections. There does seem to be, however, a certain hesitancy to its use in acutely infected processes. I will not argue for the curative effect in acute cases, however, the ureter catheter will tide many a patient over a grave crisis. There are those acute cases where the question of an operation can not be immediately determined. The patient is so sick that one hesitates to do nothing, and yet not so sick that one feels justified in operating at once. In such cases, the catheter may be of marked benefit, or its mere presence may act by intensifying the situation and help to establish in the mind of the physician the decision for surgical intervention. Surgical relief of infection in the upper urinary tract other than by the ureter catheter, requires the knife. The necessity for an open operation for relief of infection is required under two sets of conditions.

First: When the infection is a secondary matter, and where stone or retention is the primary object of the operation.

Second: When infection is the primary and important consideration.

In the first group, the offending obstruction is relieved through an opening in the ureter or kidney pelvis, the ureter dilated and a drainage tube inserted, and the wound allowed to heal.

This paper will not further discuss this group.

It is to the second group of cases that I wish to devote the remainder of my remarks, and I desire to presage any ensuing discussion with a plea for a more conservative attitude on the part of surgeons in their surgical attack upon infected kidneys.

It is my opinion that there has been a tendency for the pendulum to swing too far to the side of radicalism in this type of surgery.

In the consideration of this second group of cases, the infected kidney requires operation under three conditions.

1. Pyonephrosis.
2. Acute focal suppuration.
3. Perinephritic infections.

The treatment of pyonephrosis is nephrectomy. These pyonephrotic kidneys are often of great size. They have an enormous blood supply, and infrequently present a variety of technical problems.

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These cases are not infrequently "in extremis", and while the mortality rate, where a primary nephrectomy is instituted is surprisingly low, yet any procedure which can be instituted to further lower this mortality is an essential to institute. These cases usually present a troublesome post-operative course from the standpoint of meteorism, due to a temporary paralytic ileus. This seems to be in direct proportion to the adhesion of the peri-renal tissues to the posterior surface of a large bowel, and the amount of trauma necessary to their removal.

To superimpose such a post-operative course upon a patient already overcome by an overwhelming uro-sepsis, is, in my opinion, imposing an unnecessary hazard.

It is in this class of cases that a two-step nephrectomy is urgently indicated. A small lumbar incision, under a local anesthetic, with a drain tube into the pyonephrotic sac will take the burden of absorption from the patient's physical economy. The general improvement is often immediate and rapid. The uro-sepsis disappears; the bladder symptoms subside; the appetite improves and there is a gain in weight. Such drainage should be continued until it is felt that the risk is minimal for a nephrectomy, and then a nephrectomy can be instituted.

Such a procedure may, to some extent, increase the technical difficulties in the secondary nephrectomy. Yet this should not be allowed to stand in the way of reducing the operative hazard in such a patient.

The two-step nephrectomy, of course, requires longer hospitalization, but this is not a factor if the procedure is life saving.

In the case of focal suppurations of the kidney it is impossible to say just where the line should be drawn between cases that should be treated conservatively and those that should be subjected to a nephrectomy. I do believe, however, that one should be very slow to remove any suppurating kidney that has a fair function without a thorough trial at a conservative measures, irrigations perhaps in the lesser degrees, and drainage through the loin in the more advanced stages.

Double renal suppurations are not of infrequent occurrence in this class of cases. If there is evidence of suppuration in the second kidney, one should be very cautious about doing a nephrectomy. There is no question but that mercurochrome intravenously has a very definite place in the adjunct treatment of such a condition. I have but little faith in the tradition that the removal of a suppurating kidney will cause a slight suppuration in the other kidney to clear up. More often in a condition of this kind it will indicate that there is a beginning suppuration of the second kidney similar to that in the side first involved, and it should be taken as a contra-indication for a nephrectomy under anything but the more unusual conditions.

This calls to mind the case of a girl twelve years of age, living in the country, whom I saw a few years ago. She was desperately ill. She had a fulminating temperature, an extremely high blood count, severe epigastric pain, and an acutely painful, palpable left kidney. She had been sick for about ten days and was in extremis.

The left kidney was exposed through a lumbar incision and presented a decidedly enlarged kidney, dark purplish in appearance, and it was studded over its entire surface with myriads of abscesses, from a millimeter to a centimeter or more in size. There was no knowledge of the state of affairs of the other kidney, and because of this, it was decided to proceed conservatively. The kidney was decapsulated and dropped back into its fossa with a rubber tube drain through the wound. Mere decapsulation in this kidney seemed to work a marvel. At the end of ten days following her operation she was free of all symptoms and findings, and she made an uneventful recovery.

Such procedure as this is commonplace today, and one now almost never hears a nephrectomy advised in these very acute inflammations of the kidney, the so-called hematogenous infections. It is pretty generally considered that where surgery is indicated in these cases, decapsulation or nephrostomy should be the primary consideration before nephrectomy.

In the peri-renal inflammations of the acute type, incision and drainage is, of course, the primary consideration.

Of the more chronic, long standing type of peri-nephritis, one's judgment is not infrequently keenly taxed in deciding just what course to pursue. There is usually no more than a complaint of constant pain.

I have recently seen two cases of the chronic fibrous peri-nephritis type wherein a nephrolysis and decapsulation were performed with brilliant results. There was no demonstrable pathology by ureter catheter or pyelogram. The diagnosis in these cases was based entirely upon increased pain through forced fluid intake.

Each of these kidneys was tightly bound down by the chronic fibrous peri-renal inflammatory tissues necessitating rather laborious dissection to free them. The capsule in each instance was decidedly thickened and fibrous, the removal of which apparently allowed normal destensibility of the kidney.

In my judgment there are two factors which tend to radicalism in kidney surgery. The first is our knowledge that one normal kidney is more than adequate to carry on the work of urinary excretion. This combined with our desire to relieve the patient symptomatically, and our experience that conservative operations have not always done this, tends to make us willing to sacrifice a little renal tissue in the interest of quick recovery.

The second, that our ability to diagnose renal disease more accurately, the use of methods by which we are able to recognize much lesser lesions than it was possible to do formerly, have rather distorted our perspective, causing us to put an over-great importance on relatively slight variations from the normal in an attempt to achieve surgical idealism at the expense of conservatism.

I appreciate the fact it is difficult to estimate accurately the worth to a patient of a given kidney. I also appreciate that not infrequently in these infections of the kidney, no matter what course one pursues, that the prolongation of life, for any length of time, is quite impossible. Yet I believe we not infrequently see cases wherein the wise conservation of renal tissue may prolong life for perhaps an appreciable period. If we will keep in mind the importance of saving as much renal tissue as possible in any given case, and approach these infections in this manner, we will in many cases definitely lengthen life. Let surgery be instituted if necessary, but as conservatively radical surgery as possible.

PYELITIS COMPLICATING PREGNANCY*

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Attention was first called to this complication of pregnancy by Rebauld in 1892.

When pyelitis complicates pregnancy it occurs in the latter half with no previous illness, or only vesical symptoms. The onset is sudden, the patient is seized with severe paroxysmal pains, more often in the right renal region. Occasionally the temperature is hectic and often chills accompany the seizures. The urine usually will show pus constantly but its appearance is occasionally intermittent. This latter condition may indicate a developing pyelonephritis, the symptoms of which may disappear after the passage of a large quantity of purulent urine and if neglected may cost the patient's life.

Etiology: Pyelitis has long been thought the lighting up by pregnancy of a latent infection dating from childhood. At times in such cases the course may be subacute and diagnosed only accidentally on routine urine examinations. Hunner believes the commonest cause of pyelitis is stricture of the ureter, which is often multiple and may be bilateral. He has shown that narrowing of the lumen results from an inflammatory reaction. Also he has shown focal infection may be the cause and its removal may be necessary to relieve pyelitis. It is logical to assume from Hunner's work that the infection causes the stricture and the combination results in a pyelitis. Hirsch in Munich performed necropsies on 300 patients who died during pregnancy, or during the puerperium. Dilated ureters were found in 32% of the cases. Pollack reports almost the same percentage in 130 necropsies. Carson has demonstrated by necropsies at the University Hospital at Baltimore that pyosalpinx, pelvic peritonitis, and adhesions are causes of obstruction of the ureter with a resulting pyelitis. The infection is by one of three routes, ascencion from the infected bladder urine, by the blood or lymph, or from the intestine. The bacillus coli is the most frequent organism recovered—though Bumpus and Meisser (*) believe that the streptococcus is the infecting organism and that the colon bacillus is a secondary invader which outgrows and usurps the entire field. Helmholtz has demonstrated that injection of bacillus coli into the bladder without irritating the bladder or obstructing the urinary flow will cause pyelitis. The streptococcus, gonococcus, pneumococcus or tubercle bacillus may be the cause. In the past the general belief has been that compression of the ureter at the brim of the pelvis by the pregnant uterus obstructed urinary flow; the urine became infected resulting in a pyelitis. Pyelitis may develop in the first three months of pregnancy at which time pressure at the brim could not be the cause. During this period it is probable the enlarging uterus presses against the bladder causing a kinking of the ureters as they enter the bladder. If either of these conditions results in pyelitis I believe it is only a predisposing cause lighting up an old latent infection, or facilitating the establishment of a new infection. There is clear evidence that the pressure is a factor. It is a well known fact that the knee-chest position of the pregnant woman with pyelitis frequently will give complete and lasting relief of the complication. Hundley Jr., of Baltimore reports the following interesting findings: "In eight cases of pyelitis with pregnancy, catheters with 4 mm. wax bulbs were passed up the ureter of the affected side. Four of these patients showed a definite 'hang' at the brim of the pelvis when the catheter was withdrawn. Hydronephroses were found which contained as much as 75 c. c. of fluid. On two of these patients who showed definite 'hangs' at the brim of the pelvis and hydro-nephroses, cystoscopy was again done about two months after the birth of the babies. The same technic was carried out as in the first cystoscopy, 4 mm. bulbs again being used. On withdrawal of the catheter, there was no 'hang' made out and the pelvic capacity had returned to normal."

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*Bumpus, H. C., and Meisser, J. G., Arch. Int. Med. 27, 326 (March) 1921.

Symptoms and Diagnosis: The symptoms of pyelitis complicating pregnancy vary but little from symptoms of pyelitis in general. A chill is often the first suggestive symptom. This is accompanied by lumbar pain and occasionally by a palpable large, tender kidney. These findings alone usually differentiate the disease from appendicitis or salpingitis, but the determining findings are elicited by palpation of the thickened ureter on vaginal examination, purulent catheterized urine, cystoscopy and a pyelogram.

Treatment: Prophylaxis—With proper prenatal care pyelitis rarely occurs. Knee-chest position for five to ten minutes three to six times a day, removal of any evident focal infections, rest in bed, milk, buttermilk and water in abundance. The bowels must be kept free. In addition to this acriflavine in one-half grain doses three times a day while the urine is kept alkaline has given me quite satisfactory results. Autogenous vaccines occasionally are of value. My experience with hexalresorsinol has not been satisfactory. In a few resistant cases a ureteral catheterization was necessary with injections of one per cent mercurochrome into the pelvis. In two cases after repeating the ureteral catheterization relief was obtained only by continuous drainage lasting from twenty-four to forty-eight hours with injections of mercurochrome every eight hours. This gave lasting relief with no exceptions.

CONCLUSION

That pressure is a definite factor in the cause of pyelitis complicating pregnancy is clearly demonstrated by Hundley's experiments showing a "hang" at the brim of the pelvis which disappeared after delivery, and the fact that knee-chest position will often give immediate and lasting relief from the pyelitis.

Continuous ureteral drainage is almost certain to give relief, though other treatment has failed.

—630 Bankers Reserve Life Building.

PYELITIS IN CHILDREN*

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I think the remark Dr. Dunn made is especially applicable to children. The diagnosis of pyelitis in children is not difficult if only sufficiently suspected

Pyelitis or pyelonephritis is a very frequent condition in children. Helmholtz says "that except for common colds and gastro-intestinal disturbances of infancy, pyelitis is one of the commonest diseases of infancy."

Goppert estimates that pyelitis made up from 1.2 to 1% of his entire practice.

Although frequently present the diagnosis is often missed. The main reason for this, probably, is that the symptoms seemingly bear no relation to the urinary tract.

The etiology has been thoroughly discussed in a previous paper in this symposium and so will only be touched upon here to bring out certain important aspects in children. Clinically there are two types, a primary, in which the condition apparently arises primarily in the urinary tract and a secondary in which there are other conditions present which act as predisposing factors or foci of infection.

Undoubtedly some of the cases now classified as primary cases have predisposing factors at present unrecognized.

Pyelitis in the newborn is of this class. The following case will illustrate:

Baby M. F., age 3 weeks, normal birth. Nutrition and general condition seemed normal during the first 2 weeks. During 3rd week baby was taken with a sudden high fever, was markedly prostrated and refused the breast. The abdomen was moderately distended and the stools became greenish and contained mucous. The temperature (rectal) was between 104 degrees and 105 degrees and at first was steady, later becoming remittent.

A specimen of the urine was obtained and showed a large amount of pus. There was no other infection present as far as could be ascertained by physical examination except an injection of the pharynx. The case became a rather protracted one but eventually cleared up.

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The problem here was whether a mild pharyngeal infection could have been the primary cause or whether the bowel disturbance was the cause of the pyelitis and not the result of the general toxemia. Symptomatically it appeared after the onset of the general infection. In older children there are cases, however, which start with a chill and all of the constitutional signs of sepsis and pyelitis is the only condition found.

In a secondary group the most common predisposing conditions are upper respiratory infection and gastro-intestinal disorders.

Byfeld, formerly of the University of Iowa, has especially stressed the importance of tonsil and sinus infections in this condition.

The following case from my records illustrates this relationship rather definitely:

Baby R. J., age 2 years. The baby had been normal during the period of infancy and was very well nourished and in excellent general physical condition previous to the onset of the present trouble. One week before being called to see the baby she had developed a high fever and had several severe convulsions. Nothing was found by the attending physician but a moderately severe infection of tonsils and pharyngeal region. The baby improved under treatment but did not get entirely well. At the time at which I saw her she had had another convulsion and ran a high fever for 3 or 4 days. At this time in addition to some inflammation of the pharyngeal region she showed a large amount of pus in the urine. A definite diagnosis of acute pyelitis was made and the baby put upon the usual line of therapy. In spite of the treatment she would have one or two attacks a month. It was noticed after 2 or 3 attacks that there was always a marked increase in the congestion of the pharynx and usually a follicular exudate on the tonsils at these times.

The tonsils were finally removed and in 3 or 4 days after removal she had a flare up of the pyelitis. She was then free for about 6 weeks when she developed a naso-pharyngitis and had a short sharp attack but since then, a period of about 8 months has had no further return of the condition and the urine is free of pus.

Gastro-intestinal disorders are also important factors in the production of pyelitis. This is especially true of the summer diarrhoeas.

Schwartz found that in 63% of patients suffering from gastro-intestinal disorders there were gram-negative bacilli in the catheterized urine and in 21% their number were sufficient to indicate a bacilluria. The bacilluria was twice as common in girls as boys.

Helmholz and Beeler found that in gastro-intestinal disturbances in the first year of life, the colon bacillus was found in the urethra in almost one-third of the cases. After this age it was rarely found.

In our own work we have frequently found in summer diarrhoeas, large numbers of bacilli of colon type in the urine during or following the acute symptoms of the diarrhoea. In a number of these, pus cells were found later and a definite pyelitis developed.

Some of the infectious diseases are followed by true pyelitis. In nearly all of them of any severity some increase in the number of white cells in the urine takes place. This, however, is probably not a true pyelitis. Recently I had a case which was rather confusing in this respect.

H. C., age 4 years. Patient was taken sick rather suddenly with fever, 102 mouth, marked congestion of pharyngeal vault and heavily coated tongue. No other abnormalities could be found. The fever persisted and the child appeared more irritable and sick than the physical signs could explain.

Blood examination at this time showed:
Red blood cells—4,200,000.
White blood cells—25,200.
Haemoglobin—78%.
Differential: Polys—85%, Large Mono—1%, Lymph—14%.

Urinalysis:
Color—Very cloudy.
React.—Acid.
Sp. Gr.—1.030.
Alb.—1+.
Sugar—Negative.
Blood—Negative.
Pus—3+.

A diagnosis of acute pyelitis was made. Four or five days after the onset a slight hacking cough developed and examination showed faint bronchial breathing along the spine over the lower lobe of the left lung. A typical lobar pneumonia developed. After the crisis the urine became entirely free from pus cells.

Occasionally cases are seen in which the pus is from an unnoticed vaginitis.

There are other cases in the secondary group which are due to obstruction in the ureter, such as from stone, kinks, congenital malformations, etc. Undoubtedly many of the stubborn and chronic cases of pyelitis in children have such conditions present but on account of the fact that satisfactory urological examination on infants and children has been difficult, these cases have not been detected. At present with the advanced technique many of these cases will be cleared up.

The bacteriological cause of pyelitis in infants and children is in the majority of cases, the colon bacillus. The method or route of invasion of the pelvis of the kidney is still not definitely determined.

Helmholz after a careful review of all evidence on rabbits concludes "that pyelitis may be caused either by the ascending or the hematogenous route. Knowledge with regard to which infections are limited to the bladder and which involve the whole urinary tract is still so fragmentary that it is inadvisable to attempt to decide which is the more likely mode of infection."

SYMPTOMS

Pyelitis in infancy usually does not present a clear cut clinical picture. There are certain features which, however, are suggestive of pyelitis, namely, high fever, frequently remittent in type, anemia, no physical signs to explain the fever and very often, aside from the anemia, an apparent well-being of the baby out of proportion to the fever.

This is true of the average case but the symptoms show a great variation from a low fever of 99 degrees and 100 degrees with slight irritability to temperatures of 105 degrees and 106 degrees with convulsions, signs of meningeal irritation, and extreme sepsis.

Cases are frequently found only by routine urine examination. The child is brought in because of the vague symptoms of a anorexia, irritability, mild anemia, temperature of 100 degrees or slightly above at irregular intervals. In many of these cases constipation is a marked feature and the child may be treated for that until the urine examination shows the complicating factor, pyelitis.

The deciding diagnostic point is the finding of pus in the urine and in untreated cases, in acid urine.

As said before pus may be found in the urine in many of the acute febrile diseases and it is often difficult to tell whether the pyuria is due to complicating true pyelitis or is the result of toxic irritation of the urinary tract.

Cultural methods for determining the colon bacilli in catheterized specimens of urine might differentiate but this is not available in the routine practice of every day.

As a rule it is safe to consider the case as one of pyelitis if there are 20 to 25 pus cells to the low powered field in girls, vaginitis being excluded; and 10 to 15 to the field for boys. If there is doubt as the external contamination catheterization can be resorted to.

In the ordinary routine, however, simple precautions in obtaining the urine is all that is needed. It is frequently difficult to obtain specimens in infants. The best method in boys is the use of a test tube fastened on by adhesive; in girls I have the mother either fasten a larger tube on in same manner or else note the interval at which the baby urinates and hold her over a vessel.

There are small glass containers on the market which may be used for this purpose. I have never used them as most mothers have been very efficient in bringing in specimens.

To summarize the symptoms:

1. Fever, varying from 100 degrees to 106 degrees—usually remittent in type.
2. Abdominal distress frequently.
3. Diarrhoea or obstinate constipation.
4. General symptoms varying from general irritability, anorexia and failure to gain to extreme symptoms of spesis with convulsions, stupor, meningeal signs, rapid loss of weight and death.
5. Absence of physical signs to explain fever.
6. Pus in urine, usually in moderately large amounts with acid urine. Frequently pus will be absent in one or two examinations during height of symptoms but appears later as symptoms subside.

TREATMENT

1. Remove focal infection. If tonsils, remove tonsils and adenoids. Clean up sinus infections which frequently accompany tonsil and adenoid infections.

2. Correct digestive disorder.

3. Alkaline therapy. The use of alkalies has found general favor in treatment of this condition. Various alkalies are used. In my own work I use the soda bicarbonate in doses varying from 10 to 20 grs. 4 times a day. Usually 4 days is sufficient to thoroughly alkalinize the urine. I then stop the alkali and give sodium benzoate and urotropin until urine is highly acid and then revert again to the alkali. This seems to give better results than persistent alkalinization and there is less danger of producing an alkalosis.

Just how the alkali produces its results is not definitely known at present. Heimholtz says, "that no alkalinity that can be produced in the urine is sufficient to inhibit the growth of the colon bacillus. The most alkaline urine obtainable has a hydrogen-ion concentration of 8.6, but the colon bacillus does not stop growing until 9.4 is reached.

It is thought by some that the rapid changing of the reaction of the urine inhibits the growth of the colon bacillus.

While the child is on the soda I take away all the acid producing foods from the urine such as meat and eggs and increase the vegetables and cereals. The process is reversed when the urine is to be made acid.

A very important factor in the treatment is to give as much fluids as possible. Helmholtz suggests that possibly the entire action of the alkalies is in the diuresis produced and stresses the importance of fluids in large amounts.

4. Urological treatment. In some of the chronic cases in older children a thorough urological examination is desirable and such treatment instituted as indicated by the results of the examination.

In infants and young children this has been rarely necessary in my own practice.

PROGNOSIS

The majority of cases recover under the simple treatment outlined above. In my records I have 2 deaths for which no other cause could be cited than acute pyelitis of the septic type—one was verified by post mortem examination and the other by clinical signs only.

A characteristic feature of pyelitis is the tendency to relapse every 3 or 4 weeks. This is especially true in the secondary type where the primary focus has not been eliminated.

SUMMARY

1. Pyelitis is a very common disorder in infants and children.

2. The symptoms of pyelitis while frequently suggestive of the condition do not present a clear cut clinical picture and consequently routine urine examinations should be done in all febrile conditions of infancy and childhood and repeated frequently if any doubt exists as to the condition present.

3. The accepted treatment is the use of large amounts of fluid with alkalinization or alternate alkalinization and acidification of urine with addition of urinary antiseptics during the latter period.

The use of specific dyes such as acriflavine has been advocated and in some cases reported has given good results.

Vaccines have been used in this condition as in hundreds of others with the same varied and conflicting results.

A series of cases was reported a few years ago by Dr. Cowie in which excellent results had been obtained in obstinate cases by the use of horse serum.

Personally I have not used any of the methods to any extent other than that described and so cannot state an opinion as to the value of these other methods in selected cases.

MODERN ASPECTS OF NUTRITION: THE PATHOLOGY OF MALNUTRITION

17. Recent Viewpoints with Reference to Treatment of Acidosis—Continued.

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INTRODUCTION

In the last issue of this journal we concerned ourselves with proof of the fact that acid-base regulation in the body is not merely a chemical process, but a physiological process as well. From a clinical standpoint we wish to state that the physician in his therapy has heretofore entirely overlooked the physiological side of acid-base equilibrium. Stressing the chemical side, he has relied almost entirely upon sodium bicarbonate or some other alkali or mixture of alkalis to cope with a condition of acidosis, and has often neglected other means of treatment far more valuable. The fact that the over-emphasis of alkali does not always bring the expected improvement has been voiced by many clinicians. By way of specific instance, let us quote from Clarke and Dow(1), of Omaha: "Our own experience in the treatment of acidosis with alkalis has led us to believe that if one wishes to succeed in his care of these suddenly stricken children, some treatment other than alkalis is necessary. This statement is so characteristic of our own experience that in one instance of post-operative acidosis we injected whole blood subcutaneously with the mother as donor. The patient's prompt recovery was gratifying."

The almost universal use of alkali in cases of acidosis, or for relief in indigestion, in hyperacidity and in peptic ulcer has given it a reputation for good that is questionable. In the hands of the laity the temporary relief afforded by sodium bicarbonate may delay much needed medical or surgical intervention. It is the excessive use of sodium bicarbonate and the neglect and failure to seek aid from physician or surgeon that has caused the untimely death of Rudolph Valentino.

In the paper of last month we discussed at full length a method of treating acidosis without the aid of sodium bicarbonate. We showed how the profound acidosis induced by carbon monoxide asphyxia, ether or chloroform anaesthesia, morphine or opium poisoning, wood alcohol or ethyl alcohol intoxication is being successfully combated by treatment with inhalations of a mixture of carbon dioxide and oxygen. The acidosis in the conditions cited is brought about by depressed breathing. The gaseous mixture stimulates the respiratory process, helps to restore natural breathing, and therefore also aids in re-establishing the normal acid-base equilibrium.

We are now ready to take up other methods of treating acidosis besides inhalation of a mixture of carbon dioxide and oxygen. These methods, unlike the alkali method, which gives but temporary and symptomatic relief, actually strike at the root of the cause, and thus effect a cure of the condition. We have already discussed depressed breathing as a cause of acidosis. We shall now enumerate other causes; undernutrition (due to insufficient intake or to gastro-intestinal pathology inducing anorexia, excessive vomiting, diarrhea, stasis, obstruction, ulceration, malignancy); malnutrition (due to food improperly balanced, giving rise to deficiency disease, or to ketosis); lack of sunlight; dehydration (due to insufficient water intake or to excessive loss of water as in hemorrhage, in fever, in surgical and traumatic shock, and in diabetic coma, to conditions provocative of diarrhea, as in intestinal toxemia (arsenic, infective organisms, etc., to nutritional disease, like sprue, pellagra, celiac disease); cardiac insufficiency; metabolic diseases like nephritis and diabetes; infection, acute and chronic.

ACIDOSIS COMPLICATING FASTING, UNDERNUTRITION AND MALNUTRITION

We have mentioned the fact that disturbances in nutrition are productive of acidosis. This condition may come from failure to receive adequate nutrition or inability to retain food, as in hysteria, persistent vomiting, and in diseases of the esophagus and stomach. Infantile diarrhea may be accompanied by marked acidosis. According to Howland and Marriott(2), the acidosis found in many cases of severe diarrhea not of the ileocolitis type is apparently due to deficient excretion of acid phosphate by the kidneys, as in the case of nephritis. Moore(3) found in diarrhea without iloecolitis that the amount of acetone bodies was very large.

ACIDOSIS IN FASTING

Fasting brings about acidosis with the production of acetone bodies. Brugsch(4) showed that the quantities of beta-oxybutyric acid and acetone in the urine became very great in extreme hunger. Grafe(5) reported the excretion of large amounts of acetone in the urine during the sixteenth and eighteenth days of fasting in a stuporous patient suffering from katatonic rigidity and lying in deep sleep on these days. Folin and Denis (6) reported results on the elimination of acetone bodies and in the acidity of the urine in two obese women, one of whom underwent three different periods of fasting. On the fourth and fifth day of fasting, there came on headaches and nausea. These symptoms disappeared as if by magic after the patient took one piece of toast and a cup of tea. Often it happens that a child or grown-up that is in extremis clears up when the food and water intake is increased. Women in pregnancy often show untoward symptoms that may be the result of insufficient intake of solid food or liquids.

It is to be remembered that anorexia, dysphagia, pathology in the alimentary tract involving stasis, obstruction, tumor formation, may put an individual into a condition bordering on fasting.

ACIDOSIS ASSOCIATED WITH DEFICIENCY DISEASE

With reference to the deficiency diseases, a number of investigators have reported on the occurrence of acidosis. Takahiro(7) proved that the hydrogen ion concentration of extracts of the heart and blood vessels of birds with polished rice disease was always higher than that of control animals, and that the acidity increased with the severity of the symptoms. Hess and Killian(8) showed in scurvy a lessening of the combining power of the blood for carbon dioxide. Dodds(9), Gyorgy(9a) and Burgess and Osman(9b) called attention to acidosis in rickets. In pellagra several investigators(10) found no acidosis, but a recent British report(11) of a committee of inquiry regarding the prevalence of pellagra among Turkish prisoners of war did observe the existence of a state of acidosis. According to Collazo(11a), the alkali reserve in avitaminosis is not diminished until late in the disease.

There are many factors favoring acidosis which operate in the case of the malnourished. The lack in the diet of base-producing foods may sometimes be the fault. With reference to circulatory causes of acidosis, it may be said that a state of anemia complicates all forms of malnutrition. Chlorosis is an iron deficiency, and scurvy is characterized by a widespread hemorrhagic tendency. In this connection, it is not to be overlooked that in the deficiency diseases the individual may also be rendered acidotic by cardiac embarrassment, circulatory stasis and edema. Furthermore, proof is accumulating that protein excess or food deficient in one or more respects leads to impairment of kidney function and to the subsequent development of acidosis. Thus, Gerstenberger(11) reports that oliguria is quite characteristic of scurvy, and Lust and Klocman(12) finds in the same disease retention of inorganic components.

Since acidosis is brought about by inadequate nutrition, it is very obvious that the method of fundamentally removing the pathological condition cannot be through the use of sodium bicarbonate, but must necessarily be through the administration of food supplying the deficiencies of the diet.

FOOD IN RELATION TO ACID-BASE EQUILIBRIUM

The acid-base balance of the body is governed by the intake of potential acids and bases in the food and their removal through the channels of excretion. A food may have two types of acid substances. One type of acidity is due to the presence of organic acids, and can be readily tested for by suitable indicators. Thus, lemons and tomatoes contain citric acid; grapes, tartaric acid; apples, malic acid. Besides the organic acids, foods contain inorganic elements like sulphur, phosphorus, chlorine, sodium potassium, calcium and magnesium. Sulphur, phosphorus and chlorine form respectively sulphuric, phosphoric and hydrochloric acids, and they are therefore known as acid-forming elements. Sodium, potassium, calcium and magnesium form respectively sodium, potassium, calcium and magnesium hydroxides, and they are on that account regarded as base-forming elements. These elements are not found in the food in the form of free acid or free base, but since they have the power to form acids or bases they represent potential acidity or alkalinity.

DETERMINATION OF POTENTIAL ACIDITY OR ALKALINITY

To determine the potential acidity or alkalinity of a food we analyze for sulphur, chlorine, phosphorus, calcium, magnesium, sodium and potassium. The figures for sulphur, phosphorus and chlorine are calculated to their equivalents of normal sulphuric, phosphoric or hydrochloric acid. The number of cubic centimeters of normal acid is finally totalled. The sodium, potassium, calcium and magnesium figures are also calculated in terms of normal sodium, potassium, calcium or magnesium hydroxide, and the total normal alkali figured out. A food possesses a potential acidity if the values for normal acid exceeds that for normal alkali or potential alkali, if the value for the alkali is greater than that of the acid. The actual potential acidity or alkalinity is calculated by the difference between the normal acid and alkali. We can substract the acid and base figures from one another, for 1 c. c. of normal acid is equivalent to 1 c. c. of normal alkali.

Keeping this method of estimating in mind, we can readily see how Sherman and Gettler(13) determined the potential acidity or alkalinity of various foods. The table following is a compilation of the data of Sherman and Gettler and those of others. Forbes(14) has also published a table of calculations of acid-base values for foods. The most complete data, however, are those of Berg(15).

EXCESS OF ACID OR BASE IN TERMS OF NORMAL SOLUTION PER 100 GRAMS

Articles of Food	Acid c. c.	Base c. c.
Meat:		
Beef, lean	13.91	
Beef, lean	10.05	
Beef, lean	13.67	
Chicken	17.01	
Pork lean	11.87	
Veal	13.52	
Rabbit	14.80	
Venison	15.83	
Fish:		
Pike	11.81	
Haddock	16.07	
Dairy Products:		
Milk, cow's		2.37
Milk, cow's		1.26
Eggs, whole	11.10	
Eggs, white	5.24	
Cereals:		
Oatmeal	12.93	
Oatmeal	10.63	
Corn, sweet dried	5.95	
Rice	8.10	
Rice	8.35	
Wheat, entire	9.66	
Wheat, entire	12.39	
Wheat, flour	11.61	
Crackers	7.81	
Vegetables:		
Asparagus		0.81
Beans, dried		23.87
Beans, dried		11.58
Beans, lima, dried		41.65
Beets		10.86
Cabbage		4.34
Cabbage		7.10
Carrots		10.82
Cauliflower		5.33
Celery		7.78
Lettuce		7.37
Peas, dried		3.36
Peas, dried		7.07
Potatoes		7.19
Potatoes		5.50
Potatoes		7.72
Radishes		2.87
Turnips		2.68
Turnips		6.80
Fruits:		
Apples		3.76
Bananas, dried		5 56
Cherry juice		4 40
Currants, dried		5.97
Lemons		5 45
Muskmelons		7.47
Oranges		5.61
Peaches		5.04
Prunes		24.40
Prunes		25.55
Raisins		23.68
Raspberry juice		4.91
Nuts:		
Almonds		12.38
Almonds		11.76
Chestnuts		7.42
Peanuts	3.9	

The figures before us present many interesting considerations. They tell us that animal products, meat and fish, contain inorganic matter preponderatingly rich in acid-forming elements, in chlorine, sulphur and phosphorus. Milk is alkali-forming, but eggs are acid-forming. Cereals are acid-forming, but vegetables, fruits and most nuts are base-forming. They are very rich in sodium, potassium, calcium and magnesium. While vegetables and fruits are acid to indicators, the organic acids they contain are oxidized to carbon dioxide and water. This fact explains the seeming parodox of an acid food yielding an alkali-bearing ash. It is interesting to note that alkali is an Arabic word meaning marine plants. Certain fruits, however, like cranberries, prunes and plums yield a basic inorganic residue, but they, nevertheless, serve to increase the acidity of the urine, because the acid they contain is benzoic acid, which does not oxidize to carbon dioxide and water. What it actually does is to conjugate in the body with amino-acetic acid or glycocol to produce hippuric acid.

So far as diet is concerned, the consensus of opinion holds that food should contain sufficient base-forming elements to neutralize the acid produced in the course of metabolism. If these acids are not cared for by the base-forming elements in the food, fixed bases of the tissues may be called into the process of neutralization. Whether base-forming diets are absolutely indispensible to health is an unsettled question. From Chittenden's studies(16) it appears that the body is capable of more sustained efforts on alkaline diets than on acid diets. However, it must be said that some investigators—Greenwald(17), Lamb and Evvard (18)—do not regard the alkaline diet as a physiological necessity. We must not overlook the fact that an alkaline diet cannot produce the best results unless it is adequate in all respects. Looked at from an angle of completeness, a given acid diet may prove better than a given basic diet for the simple reason that the former may hold a more adequate supply of nutriments. It must be said in favor of the acid diets, that they have been used with great success in infant feeding in the form of acidified milks(19). A diet calculated to result in ketosis has been successfully applied in the treatment of idiopathic epilepsy in children(20). It is interesting to note that in spite of a diet capable of producing acidosis and acetone bodies, the children improved clinically, and kept on gaining weight.

CHANGES IN pH AND TITRATABLE ACIDITY DUE TO FOOD

Blatherwick(21) has proved that both the actual acidity (pH) and the titratable acidity of the urine depend upon the type of diet. A base-forming diet reduces the acidity; an acid-forming diet increases it. Page(22) has shown that the alkali reserve of the blood can be increased by a base-forming diet. Clinicians often give sodium bicarbonate, sodium acetate, or potassium citrate in a condition of acidosis. The use of alkali is open to many important objections and these we shall enumerate at some later date. The use of alkaline drugs is physiologically unsound. Any therapeutic measure that does not harmonize with proven physiological principles is of questionable value, even in the face of apparent clinical results. Better and more lasting effects in the treatment of acidosis are to be secured by feeding properly selected base-forming foods. Similarly, feeding acid forming foods increases the acidity (pH and titratable acidity), and should dispense with the use of sodium dihydrogen phosphate for the same purpose. A highly acid urine causing irritation to the skin, and the highly acid urine in cystitis and pyelitis can be brought down in acidity by means of alkali-yielding food..

The acidosis of diabetes and nephritis is also amenable to dietetic treatment. The prognosis of nephritis with retention of urea and other nitrogenous compounds does not depend so much on their amount in the blood as on the degree of acidosis. Mogena and Orcoyen(22a) advise a base-forming diet, that is one rich in fruits and vegetables, as an aid in restoring the acid-base balance in nephritis. In pregnancy the alkali reserve is subnormal. For that reason an alkaline diet is strongly indicated. During the period of lactation an alkaline diet is also indicated, for this type of diet, abundant in fruits and vegetables, is also rich in vitamins.

SUNLIGHT OR ULTRA-VIOLET LIGHT AS AN AID IN THE TREATMENT OF ACIDOSIS

The therapeutic value of the natural rays as well as the artificial rays is too well known to require comment. They raise the calcium content of the blood, and are especially useful in conditions complicated by a low serum calcium, by a loss of calcium from the body, or by an inability to utilize calcium.

Sunlight and ultra-violet rays, by helping to cure rickets or tetany, aid in removing the acidosis accompanying these diseases. Even in conditions other than these, McCaskey(23), and Balderey and Barkus(24) have shown that sunlight and ultra-violet rays have the ability to increase the blood alkali. Clinicians should, therefore, make greater use of this fact as an aid in the treatment of acidosis.

ACIDOSIS DUE TO DEHYDRATION

Dehydration is a very well-recognized cause of acidosis, and it may often intensify the severity of an acidosis due to some other cause, as diabetic coma. Acidosis itself may be the cause of dehydration(25). During fasting, which brings on acidosis, loss of water takes place as a result of the decrease in cell volume incident upon the reduction of tissue glycogen, and also as a result of the release of water through the destruction of tissue protein. Ramos(26) and also Ramos and Fox(27) have recently emphasized the important part water plays in acid-base equilibrium in the blood. The existence of a state of dehydration may be easily recognized by dryness of the skin. The blood may show a decrease in volume, an increase in hemoglobin, and an increase in both red and white cells.

Anhydremic acidosis, according to Clausen, is due to lactic acid. Anhydremia brings about respiratory embarrassment and subnormal oxidation. In this condition the rate of removal of lactic acid is less than the rate of production. Infancy is especially prone to anhydremic acidosis, and its frequent cause in this period of life is diarrhea or vomiting.

Dehydration is caused by insufficient water intake, by an excessive intake of salt or sugar, by excessive loss of water through increased pulmonary ventilation, through the skin as in fever, through the stomach as in repeated vomiting, through the large intestine, as in diarrhea, dysentery, cholera, pellagra, celiac disease. Anhydremia occurs in surgical and traumatic shock and in poisoning by war gasses.

Dehydration is the cause of the fever known as dehydration fever. This condition is apt to occur in infants in the first few days of life, and proves fatal, if through failure to recognize the cause, the infant is not given sufficient liquid in the form of plain water, saline or milk. According to Aron(27a) many alleged cases of pneumonia in infants are only manifestations of hyperthermia from thirst. The rapid breathing observed is merely sympathetic of lack of water. Dry wrinkled skin, depressed fontanels, dry red tongue, hoarse voice and vomiting are other symptoms. A wrong diagnosis may entail the death of the child. Administration of water or salt solution per os or per rectum saves it.

Dehydration is so important and so oft-occurring a syndrome that it may give rise to such profound physiological embarrassment that the therapeutic use of fluids internally and eternally is justifiable. In fever and infection, in the conditions giving rise to abundant loss of body fluid through excessive hemorrhage, vomiting or diarrhea, in surgical, traumatic or chemical shock, water is a therapeutic agent of no mean importance. Dehydration leading to anhydremia with marked concentration of blood volume is especially urgent an indication for immediate treatment. To quote from an editorial on anhydremic acidosis, which appeared in the J. A. M. A. of 1925(29): "Alkalis may be a menace, leading to edema or tetany through alkalosis. Intravenous or intraperitoneal infusions of replacement fluid may be life saving." It is interesting to note with reference to treatment of dehydration that saline solutions may also be contra-indicated. Lurz and Rupp(30) report that patients after surgical operation lose within 48 hours from 0.5 to 1.5 liters of water. Since sodium chloride, however, is retained in post-operative dehydration, these authors maintain that salt solutions are contra-indicated. Rectal enema of salt-free solutions (black coffee) lowers the thirst.

One of the outstanding features of diabetic coma is dehydration of the tissues(31). As the patient becomes somnolent he drinks less and less. The dulled senses and stupor make him less responsive to thirst. While failing to replenish water, he continues to abstract it from the tissues in order to eliminate excessive sugar through the urine and continues to lose water from the lungs as a result of increased pulmonary ventilation (air hunger or Kussmaul type of breathing). It is therefore not surprising to find a patient in diabetic coma with a loose and dry skin, and a parched tongue and pharynx. As a matter of fact the dehydration is so severe that the eyeball appears sunken and feels soft as jellyfish. The soft eyeball, originally described by Krause(32), serves as a diagnostic sign and is valuable also differentially, for it is absent in coma of non-diabetic origin.

It is amazing to see how rapidly absorption of water takes place in the diabetic patient that is extremely dehydrated. The tissues seem to take up water like a sponge, and it is no difficulty at all to give a liter in an hour. Rapid absorption takes place subcutaneously and also intraperitoneally. A liter of fluid may be injected slowly into the peritoneal cavity with no danger of distention.

It is very evident that the diabetic in coma requires liquid, not food. How shall this fluid be given? A few facts about the stomach in this condition will be of help in deciding the route of administration. At autopsy we find in the person dying in diabetic coma the walls of the stomach dilated, very thin and pale, the rugae entirely flattened out, and the lining membrane showing small petechial hemorrhages. Due to the dilation, the muscle fibers are separated. Circulatory stasis is in evidence, the walls of the blood vessels are dilated, and the escaping blood gets through not by rupture but by diapedesis. In the late stages of coma, gastric hemorrhage may occur, causing additional depletion of circulatory fluid. From what we have said, it would be proper to give fluids by mouth in the prodromal stage, before the onset of coma or after the patient has entered upon recovery, but not during the active stage of coma. We are forced to choose other ways of hydrating the patient. If the patient is very dry, saline solution should be given subpectorally, except in the presence of pulmonary rales, when it may be given under the skin of the thighs. Ordinary saline, black coffee or tap water may be given per rectum every 2 hours for 2 doses and thereafter every 4 hours, or saline, but not water, subcutaneously. It is not desirable to give a patient in coma more than 20 grams of sodium chloride in 24 hours. In those with a tendency to nephritis it may even be necessary to use plain water per rectum, since an excessive accumulation of salt may give rise to renal block. Saline can also be safely administered intraperitoneally.

The intravenous route should be entirely avoided in diabetic coma. Enfeebled heart action characterizes every case of diabetic coma. The pulse rate is very high, and the blood pressure very low. It is therefore too risky and too sudden a burden to throw upon a weak heart a quantity of fluid, and, furthermore, it is difficult to introduce the fluid because of the low blood pressure and small vein. Those who insist upon injecting intravenously must do so only slowly and should give about 250 to 500 c. c. of saline, and give no more until at least an hour has elapsed. With reference to intravenous injection in the comatose diabetic, Foster(31) writes: "It has happened twice that patients have died suddenly while I was giving saline solution into a vein. Similar unfortunate experiences have been recorded by others."

In the preventive treatment of coma or after the patient has become conscious and has shown clinical signs of improvement, liquids by mouth can be administered. These must be given warm, for cold fluid has a tendency to induce vomiting. Not more than 100 c. c. should be the intake per hour, or 25 to 30 c. c. every fifteen minutes.

Before passing, it should be mentioned that the saline or ordinary water given per os or per rectum may carry dissolved glucose to control any excess of insulin.

ACIDOSIS DUE TO HYPOGLYCEMIA

Hypoglycemia is a clinical syndrome caused by an insufficiency in the amount of sugar necessary for biologic oxidations or for metabolizing fat in the normal way. When the blood sugar is low and the carbohydrate store in the liver is depleted, beta-hydroxybutyric acid, diacetic acid and acetone arise in the organism, owing to the incomplete combustion of fat. The acidosis produced by hypoglycemia is, therefore, one due to ketosis.

Hypoglycemia occurs in fasting and in undernutrition(32a). Consequently it occurs in any pathological condition where the patient cannot partake of food, in conditions of anorexia, or in alimentary obstruction, or where the patient cannot utilize food, as in severe vomiting. A patient with carcinoma with almost complete occlusion of the esophagus or a patient with a complete stenosis of the phylorus due to a tumor or ulcer may be literally starving. Roffo and Rivarola(33) have observed in cancer of long standing hyperglycemia, but in the condition of cachexia, hypoglycemia.

Fasting and undernutrition are not the only causes of hypoglycemia. It also results from a diet rich in fat and extremely poor in carbohydrates, or in conditions where the carbohydrate store suffers depletion, as in post-anaesthetic conditions. In anaesthesia, hyperglycemia at first takes place, which, according to Josephs(34), may be later followed by hypoglycemia. Fisher and Snell(35) and also Talheimer(36) have successfully treated post-operative shock by glucose infusions fortified by insulin. Among other causes of hypoglycemia we may list carbohydrate dystrophy, endocrine deficiency, as in myxedema and Addison's disease, experimental removal of the liver, as well as diseases of the liver. Steinbrinck(37) recommends administration of glucose in every severe case of disturbance of the liver.

Harris(38) and also John(39) describe cases of hypoglycemia, which they believe to be due to hyperinsulinism or dysinsulinism. The patients Harris discusses show symptoms of hypoglycemia before meal time. The feelings of weakness, nervousness and hunger are relieved by eating candy or by other food. The hypoglycemia is believed to be due to excess of insulin produced by the pancreas.

Since insulin causes a using up of sugar, hypoglycemia is apt to occur in a diabetic patient who takes his required dose of hormone, but at the same time omits a meal or two or eats less than prescribed. It is also apt to be found in the diabetic receiving an excessive quantity of insulin. Hypoglycemia, due to the ketone bodies formed in the body, may give rise to coma. It is, therefore, very important in a diabetic to be able to differentiate between coma, induced by hypoglycemia as a result of insulin treatment, or so-called diabetic coma, due to the lowering of carbohydrate tolerance brought on by total neglect of treatment, by carelessness in following the dietary regime, or by the onset of infection.

Happily for the clinician the differentiation is not very hard. Aside from the history of the omission of meals or of excessive insulin dosage, he finds in insulin coma that the patient's skin is moist, whereas in diabetic coma it is extremely dry and loose. On examining the urine he finds acetone and diacetic acid but no sugar, whereas in diabetic coma, he finds acetone, diacetic acid and sugar. On estimating the sugar in the blood, he obtains a figure, much below normal in insulin coma or hypoglycemia, that is about 0.06 per cent or less, while in diabetic coma, the sugar ranges from 0.4 to 0.8 per cent and goes up even to 1.0 per cent or still higher.

The immediate cure for coma induced by the ketonic acidosis brought on by hypoglycemia (insulin toxemia) is simply glucose solution. If glucose is not at hand 300 c. c. to 500 c. c. of orange juice, honey or corn syrup mixed with water can be given by stomach tube, if the patient is unconscious. *Failure to give sugar in this type of coma or the administration of insulin results in the death of the patient.* When in doubt as to hypoglycemic or insulin coma or true diabetic coma give sugar first, and if the patient does not recover consciousness and improve in other ways in about fifteen to twenty minutes, then inject insulin.

In connection with hypoglycemia, it should be remembered that children are very prone to develop this state as a result of undernutrition or as a consequence of an ill-balanced diet very poor in carbohydrate. Benedict and Talbot(40) have shown that in children the reserve sugar is much more rapidly exhausted than in adults. Talbot, Shaw and Moriarity(41) have also shown that a more rapid and profound exhaustion of the glycogen reserves occurs in fasting children than is the case in adults, and that the young growing body is unable immediately to bring about a degree of compensation, by glucose synthesis, sufficient to maintain a normal blood sugar concentration.

On account of the rapid depletion of the carbohydrate reserve, it is to be expected that ketonuria would appear in children more readily than in adults. In this connection it must be cited that children excrete, according to Wilson, Levine and Rivkin(41a), a relatively greater quantity of ketone bodies at a given metabolic rate above the threshold of ketosis than do adults. This fact may explain the long recognized clinical fact that a far greater tendency to acidosis is encountered in children than in adults, that its development is more rapid, and that its course is more severe. It must be borne in mind that anorexia, acute infection and cyclic vomiting, often virtually amount to involuntary fasts. According to Tallerman(42), ketosis, partly due to rapid depletion of carbohydrate and partly to decreased carbohydrate tolerance resulting from bacterial action, is an oft-accompanying phenomenon in infection in children.

It is very surprising how even a small quantity of sugar will cause a patient to snap out very quickly of all the dangerous and threatening symptoms of an acidosis induced by hypoglycemia. Administration of sugar is all that is necessary to correct this type of acidosis, if the supply of water is also ample. Allen(43) has proven experimentally that acidosis induced by sugar depletion can be entirely relieved by sugar administration. Evidently the utilization of glucose in the tissues is a factor on a par with respiration and with the activity of the kidneys in the physiological regulation of the acid-base balance of the blood.

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(To Be Continued)

THINK RIGHT

Think smiles, and smiles shall be;
Think doubt, and hope will flee;
Think love, and love will grow;
Think hate, and hate you'll know.

Think good, and good is here;
Think vice—its jaws appear!
Think joy, and joy ne'er ends;
Think gloom, and dusk descends.

Think faith, and faith's at hand;
Think it — it stalks the land.
Think peace, sublime and sweet,
And you that peace will meet.

Think fear, with brooding mind
And failure's close behind.
Think this: "I'm going to win!"
Think not of what has been.
Think "Victory"; think "I can!"
Then you're a winning man!

—David V. Bush, in Tit-Bits.

RECENT ADVANCEMENT WITH DEFINITE CONCLUSIONS IN TOXIC ADENOMA*

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In every day practice, we are confronted with a series of cases which we are unable to definitely classify. The conditions I am referring to are the border line cases of goitre.

My discussion in this paper will be centered around some of the following principal points, dwelling upon some of the recent advancements and conclusions that have been made lately. An enormous amount of work is being done experimentally and by research work, by men such as Kocker, Lenhart, Marine, Kimball and Crile, in this field.

(a) Endemic goiter is a geologic deficiency disease due to a lack of iodin in the organism.

(b) By the proper administration of iodin to the pregnant mother, and to the child up to and through the period of adolescence, endemic goiter may be prevented; that is to say, the children of goitrous regions may be as free as are the children of the sea-shore.

(c) After the twenty-fifth year of age iodine exerts little or no beneficial effect on goiter.

(d) By the improper use of iodin or thyroid products many cases of quiescent goitre, especially of the adenomatous type are converted into exophthalmic goiter or hyperthyroidism — toxic adenoma.

(e) Induced hyperthyroidism is essentially identical with spontaneous hyperthyroidism.

(f) About 90% of all malignant tumors of the thyroid arise in fetal adenomata. Therefore, iodin given the pregnant mother may prevent fetal adenomata.

(g) Colloid goiter, colloid adenomata, and adenomata in patients with normal sensitizations and normal metabolism may be considered as simple or quiescent goiters.

(h) Hyperthyroidism may be associated with a colloid goiter (rare), colloid adenoma, adenoma, or hyperplasia. Hyperthyroidism presents no uniformly specific pathology of the thyroid gland.

(i) With certain exceptions the increased sensitization of the organism due to hyperthyroidism is manifested by abnormal nervousness, tachycardia, tremors, increased basal metabolism, and loss in weight.

(j) With certain exceptions increased sensitization due to hyperthyroidism is specifically exaggerated by the injection of adrenalin (Groetsch's test).

(k) Basal metabolism estimation provides a valuable, but not a specific test for the presence of hyperthyroidism. Basal metabolism estimations are of value in the differential diagnosis of borderline cases, but are of little value in the determination of the operability or prognosis of cases of hyperthyroidism. The patient's clinical picture with definite lesions of the heart are a better criterion.

(l) In a small group of cases goiter may cause myocarditis and hypertension without involving the nervous system.

(m) The general hypothesis that the body is an electro-chemical mechanism in which the electric conductivity, hence oxidation is controlled by the thyroid.

(n) It has been shown that the electric conductivity of certain active tissues and organs is increased by iodin. Therefore, we may suppose that in all cases of hyperthyroidism or hyperiodism the same tissues would not be equally influenced, but that in some cases one and in others another tissue would show the greater alteration, thus producing such various types of disease as the exophthalmic type, "toxic adenoma," the myocardial and the cardiovascular types. Graves' disease, Gull's disease, Basedow's disease, exophthalmic goiter, toxic adenoma are, at best, loose and unsatisfactory terms.

(o) They make the following statements regarding the surgical treatment of hyperthyroidism:

1. We believe that the so-called hyperthyroidism is an intracellular acidosis which is overcome by restoring the normal acid-alkali balance. This is accomplished by subcutaneous infusion of 3,000 to 5,000 cc. of water, by digitalizing the heart, by blood transfusion, and by rest.

2. Any case up to the beginning of dissolution is operable, or may be made operable by a short period of active treatment, which will be described.

3. Preliminary ligations were made in about 40 per cent of the cases formerly, now it is practically unheard of in goitre treatment.

4. We no longer use hot water injections, quinine and urea injections, x-ray or radium, but add to surgical treatment a planned regimen of rest and diet just as if no operation had been performed.

5. In view of the surgical results, surgical resection for all cases without regard to the degree

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of hyperthyroidism, is now considered the only treatment for goiter.

FUNCTION OF THE THYROID

The brain drives the organisms of man and animals. Environment drives the brain. The driving power of the brain depends principally upon three organs: The adrenals, the liver, and the thyroid. The contribution of the thyroid is well illustrated by the two extremes of thyroid activity: Myxedema and exophthalmic goiter. Without the thyroid the brain is dull and stupid. With excessive thyroid activity life is tense, dramatic, and excessively responsive to every stimulus. Between these extremes the mass of humanity wends its normal way.

Coincident with conditions, in bearing offspring, in exophthalmic goiter, the volume of the thyroid gland is increased. The peculiar function of the thyroid appears to be the splitting up of the iodin-containing molecules of any compound of iodin which enters the organism (Marine) ferrous iodid, sodium iodid, potassium iodid, and the conversion of the iodin into the specific thyroid product thyro-iodin or thyroxin (Kendall).

The crux of the thyroid problem, therefore, becomes this: What is the fundamental function of iodin? In attacking this question it is necessary to adopt a new hypothesis as to how the organism operates. It is explained that the organism of man and animals is an electro-chemical mechanism which obeys physical laws: That the cells of the nervous system are batteries; that the action current of stimulation is electricity; that in accordance with Nernst's hypothesis and R. S. Lillie's researches, the nerves are biologically adapted to slowing the speed of transmission; that through oxidation electric energy is generated; that the nerve-cell as a battery is active only as long as a difference in potential exists between cell body and nucleus, that consciousness is the act of responding to the stimuli of the external and the internal environment, and that sleep is the phase of recharging the batteries.

If we accept this hypothesis, that the organism is an electro-chemical mechanism, in which increased functional activity is synonymous with increased electric conductivity, then, since iodin and increased thyroid activity alike have the power of speeding up the organism it would be increased. In the course of a research in their laboratory, it was found that the electric conductivity of the brains of animals in a state of acute iodism was increased. The application of this finding to the phenomena of myxedema, on the one hand, and of exophthalmic goiter on the other hand, would seem to indicate that in the former condition there is a state of chronic hypoiodism; in the latter chronic hyperiodism or as C. H. Mayo designated it hyperthyroidism.

The validity of the foregoing findings is strengthened by the work of Meyer in the Marine Laboratory in Florida, who found that iodin increased the electric conductivity of water in which nerve was immersed, at the same rate that it increased the conductivity of the nerve itself.

In view of these findings it would appear that if iodin has the power of increasing both function and conductivity, then it should follow that in ordinary iodism the adrenaline sensitization would be positive. In one clinical case of mild iodoform-poisoning a positive reaction to adrenalin was secured; but opportunities for such observations are necessary, and are, fortunately, rare.

Having found that the intravenous injection of adrenalin produced a measurable increase in the temperature of the brain they proceeded to study the effect of the injection of adrenalin into iodized animals. Two rabbits out of four of approximately the same weight and age, all of which had been kept for some time under identical conditions, were iodized by the intraperitoneal injection of iodoform; the other two were kept as controls. After the insertion of the thermocouple in the brain an identical dose of adrenalin per kilo weight was injected into each of these rabbits, the temperature reading being continuous before, during and for a sufficient period after the injection. It was found that the adrenalin caused a greater and more prompt increase in temperature in the brain of the iodized animals than in the controls. This finding may be offered as a physical interpretation of the sensitization of the organism to adrenalin in hyperthyroidism.

It would appear that the study of the thyroid begins and ends with iodin. Marine states that simple goiters and the incidence of fetal adenomata results from a deficiency of iodin alone. On the other hand, goiters of the exophthalmic type are due to hyperiodism — the hypersecretion of thyro-iodin by the thyroid. The excessive iodism causes abnormal permeability of the cell membranes. Increased permeability of the cells means increased activity. Increased activity of the cells and increased metabolism — is one of the results alike of iodism and of stimulation.

That the adrenal glands are powerful activators of the brain, and that their aid is promptly elicited with increased metabolism when increased work is required, is shown by the fact that adrenalin alone produces nearly all the symptoms produced by the various causes of increased energy transformation, such as emotion, exertion, injury, infection. That is, adrenalin causes increased metabolism, increased thyroid activity, increased blood-pressure, increased pulse, increased respiration, leukocytosis, increased sweating, dilation of the pupils, diversion of the blood to the surface, lowering of the threshold at the myo-neural junction. But it is the thyroiodin that sensitizes the tissues to adrenalin. Adrenalin increases hyperthyroidism; hyperthyroidism increases adrenalism; i. e. hyperthyroidism, iodism, and adrenalism coexist, each augmenting the other.

Of no less significance are the facts that adrenalin causes hyperchromatism and later chromatolysis of the brain cells, just as do emotion, injury, exertion, infection, that it causes an immediate increase in the electric conductivity of the brain and an immediate production of heat, as has been shown by thermocouple records; and that when the adrenals are removed the brain cells rapidly degenerate, the animal rapidly loses the power to fabricate heat, and muscular and mental action, and death usually follows.

The conclusion, therefore, is that the brain is dependent on the adrenals, both for function and for survival. The adrenals may show enlargement in some chronic activations such as infection, pregnancy, rutting season, exophthalmic goiter. The adrenals, therefore, must be included among the means by which organism is activated.

In the measurements of the electric conductivity of animal tissues under varying conditions, it was found that adrenaline first increased the conductivity of the brain, and that, as a result of the injection of excessive doses of adrenalin, the conductivity of the brain is decreased as in the case of other forms of stimulation. If conductivity is related to stimulation, then an increase or decrease in conductivity would be associated with an increase or decrease in function, i. e., with activity or exhaustion. The electric conductivity observations have indicated that the first effect of the excitants of bodily activity, such as injury, fright, toxins, is to increase the conductivity of the brain, while in every type of exhaustion studied the conductivity of the brain was decreased when the state of exhaustion was established.

If the activation of the brain is a phenomenom of electric energy, then since electric energy depends upon oxidation, and oxidation in part at least is controlled by adrenalin, it naturally follows that excessive adrenalin would ultimately cause fatigue and decreased conductivity. This may be the cause of the great fatigue which is uniformly seen in cases of advanced hyperthyroidism.

Both experimental and clinical phenomena seem to indicate that the body is driven by electricity, which is fabricated in the brain cells with the aid of adrenalin. But there is no evidence that adrenalin covers more than the emergencies of moments and hours or of days. Adrenalin is too evanescent, too volatile to establish and to maintain evenly an increased receptivity, increased sensitiveness to response, and increased metabolism, both basic and adaptive, day and night, for weeks and months. We assume that the brain has no power within itself to do this, and that, therefore, prolonged activation is accomplished through the aid of some other organ. If electricity is the driving force of the organism, and if electric power is increased by increasing the conductance of the tissues over which it passes, it would follow that there must be in the body an organ which is capable of supplying to the blood for weeks and months a substance that is known to increase electric conductance, the blood, in turn, supplying this substance to the nervous system. This is the role of the thyroid.

In true exophthalmic goiter the activity of every tissue and organ is speeded. May there not be a less inclusive form of hyperthyroidism? And in certain cases may not some organs and tissues be more affected than other organs and tissues? For a long time it has been noted that, following the removal of colloid goiters, colloid adenomata and adenomata, especially those of large size, some patients have reported an improvement in general health beyond what one would anticipate from the mere removal of the enlarged gland. In some cases the improvement has seemed to pertain principally to the nervous system; in some cases to the heart; in some to the blood pressure. At first it appeared that this improvement must be due to the following factors: Psychic relief from pressure; relief from interference with the respiratory exchange. Doubtless these factors are worthy of due consideration in certain cases.

But increasing experience has demonstrated that there is like improvement in cases in which there has been no psychic stress; no interference with the circulation in the venous trunks; no interference with the respiratory exchange. It appears, therefore, that the improvement in certain cases must be due to the diminution of thyroid activity following partial thyroidectomy.

As has been stated in the preceding section, the only proved function of the thyroid is the fabrication of iodin into an organic compound which exercises a basic control over the bodily processes. In hyperplastic goiters this function is most active, and Marine, Allen and Graham have shown that adenomata also perform the characteristic thyroid function. Clinical evidence of the functional activity of adenomata is found in the frequent development of symptoms identical with those which are characteristic of exophthalmic goiter, and in the disappearance of these symptoms after the removal of the adenoma.

A large gland showing no hyperplasia may secrete too much thyroiodin or thyroxin, or one may suppose that in some cases some organ, such as the heart, is abnormally responsive to the normal thyroid secretion. In hyperthyroidism due to hyperactive adenomata either iodin or thyroid extract may cause an aggravation of the symptoms.

In view of these facts the following questions arise: Are the clinical symptoms of so-called toxic adenomata due to a physical degeneration of the adenoma and, therefore, to be compared with the clinical symptoms that result from the degeneration of fibroid tumors? Are they due to such changes as are produced by chronic toxemia, from infection of the gall-bladder, the teeth, the tonsils, etc.? Or are they due to the thyro-iodin which is fabricated by the adenoma?

That the last of these queries suggest the true interpretation appears to be indicated not only by the identity of symptoms referred to above but also by the fact that the well-developed "toxicity" from the "toxic" goiter often produces a sensitization of the organism to adrenalin, identical with that present in cases of hyperplastic goiter which are associated with exophthalmic goiter. In fact, with the exception of exophthalmos, all the characteristic symptoms of true "exophthalmic goiter" may be present in cases of so-called "toxic adenomata", i. e., increased basal metabolism, tachycardia, nervousness, tendency to fever, low thresholds, emaciation although such, as increased appetite may not be as marked as in exophthalmic goiter.

The onset in exopthalmic goiter usually comes on unawares, while in toxic adenoma, the symptoms occur spontaneously with insidious onset and develop more gradually, but progressively. Plummer believes that this type of hyperthyroidism is a true hyperthyroidism in contradistinction to hyperthyroidism due to exophthalmic goiter. This being true may we not explain the increased cases of thyroid hyper-activity in men which have manifested themselves during the past years as the result of table iodized salt.

In toxemias from the toxins of degeneration of other tumors, such as fibroid of the uterus, and in chronic infections, as a rule neither the appetite nor the basal metabolism is increased. Occasionally one sees cases of high blood pressure, of mycarditis or of neurasthenia in which the only evidence of the thyroid involvement is the presence of a goiter. In some of these cases good results have followed the excision of the thyroid gland. It would appear that adenomata may cause every grade of pathologic physiology progressively from mycarditis, increased blood pressure, nervousness, and increased metabolism on up to true exophthalmic goiter. This progressive involvement of bodily processes, due to adenomata is analogous to the progressive effects of various grades of infection from mild oral sepsis to chronic empyema of the gall-bladder, acute peritonitis, or acute osteomyelitis. It would seem, therefore, that the various types of goiter should logically be regarded as varying degrees of the same or similar processes, and that, certainly as far as treatment is concerned no differentiation should be made between exophthalmic goiter with hyperplasia and the so-called "thyrotoxicosis" from adenomata, or some of the typical forms of the disease; that the same regimen or management which has proved effective in the treatment of exophthalmic goiter will produce like results in the treatment of the so-called "toxic goiter" should be regarded as varying degrees of iodism or hyperthyroidism rather than a toxemia.

It is difficult to reach any conclusion on this point which is not fully in accord with the monumental work of Plummer. In any case, whatever one's opinion, the treatment and the clinical results are identical, so that the point of view matters but little after all.

DISCUSSION

C. A. ROEDER, M. D., (Omaha): This excellent paper of Dr. Pederson's certainly covers the subject, and one has very little to add.

I want to emphasize what he said regarding the use of iodine. We have three different types of goiter: Colloid, lymphoid or adenomatous, and exophthalmic. They are entirely different, although one case may contain all three types.

The colloid goiter of adolescence may be prevented by the use of iodine — we think it can be. After that, the giving of iodine has no influence. There is only one thing to give, and that is thyroid extract, and that may have no influence. In these patients we sometimes see lymphoid goiters. They are actually secreting areas in the thyroid. They may be very toxic or slightly so; but if you give iodine, you make them worse.

Exophthalmic goiter we feel is not a disease of the thyroid gland, but an area in the surrounding tissues that causes a demand on the thyroid gland — which whips up the gland until it exceeds its normal secretion and gets up an abnormal. We must get that clear in order to understand how to treat it.

Different cities, like Rochester, N. Y., have put iodine in the water, and later they took it out, because these goiters well developed, known as the colloid or adenomatous, will be made worse. They will have a lot of trouble from it. It is not a harmless drug to give.

In exophthalmic goiter, which is secondarily a disease of the thyroid gland, we have a condition of hyperthyroidism. Hyperthyroidism is more or less dys-thyroidism. That gland should have iodine. That is the only goiter that should have iodine. It does not cure the goiter, but prepares it for operation. If you have exophthalmic goiter, you will always find it until the chemist finds the reason in the tissue. You break the vicious circle by operation. They are relieved and go on with their gastrointestinal symptoms, and their heart beats fast. They are not well. Nobody knows why, or has ever cured them. About the only thing is to operate and cut down the circle, and tell the patient, "We do not know what is wrong. You have something wrong with the body chemistry and it has been upset." You may leave a little bit of exophthalmic goiter and it will recur. Be frank with your patients and tell them.

In toxic adenoma, take it out and your results are good. We are getting into a new field of goiters. About 75 per cent of exophthalmic goiters given iodine quiet down so you can operate, but the cross section looks like colloid goiter. It bleeds easily. Exophthalmic goiters pass out suddenly with heart failure. That is increasing the mortality rate following operation for exophthalmic goiter. The so-called "goiter heart" may be brought about by the indiscriminate use of iodine. It has no place in the treatment of goiter outside of quieting down the exophthalmic.

A. W. ANDERSON, M. D., (Belvidere): I was pleased to hear the paper by Dr. Pederson, and hear these men who have had a lot of experience in goiter discuss the paper. It is a subject in which a doctor is more or less interested. If we knew how to treat goiter successfully, we could make a fortune.

I agree with Dr. Roeder we can give too much iodine, and there is too much given. I do not think iodine does any good only to quiet the symptoms. In giving iodine in adolescent cases — in cases in which girls fourteen to fifteen develop a simple goiter — it has been found beneficial; although I think you can give too much iodine. It will increase it rather than do good. That has been my experience.

L. D. McGUIRE, M. D., (Omaha): In discussing this paper of Dr. Pederson's, there is one thing I think you should emphasize, and that is the distinct difference between exophthalmic goiter and toxic adenoma. I do not think we should use the word hyperthyroidism to include the two. Toxic adenoma is straight hyperthyroidism. You can take thyroid extract and inject it and produce an exact picture of a toxic adenoma. You may inject as much as you will, and you will never produce a picture of an exophthalmic goiter. You will lack the exophthalmia, the gastrointestinal crisis, and the cerebral crisis.

The exophthalmic goiter is putting out too much secretion, and is short on iodine. It is far too long on the amount of secretion. So toxic adenoma should never be given iodine, and exophthalmic goiter should be given iodine until the secretion is brought to the normal type. After that it is still giving off too much secretion, and you have to give them sufficient to bring it to the normal amount.

I think the main thing in one is straight hyperthyroidism, and the other is a perversion of the thyroid secretions.

DR. PEDERSON, (closing): The only point I should like to impress is the indiscriminate use of iodine among the laity. We shall see more toxic goiters as a result of this. When iodine is prescribed by doctors to the public, it is absolutely all right.

During the last year or so I have seen more cases of adenoma in our city. It may be a coincident; I do not know. The only solution is precaution in: feeding themselves on iodine salt. I think the laity should be taught these things. The commercial houses are putting these things on the market, and the laity will suffer for it.

I thank you.

THE DEVELOPMENT OF CARCINOMATA IN ANO-RECTAL FISTULA TRACTS

LOUIS E. MOON, M. D.,
Omaha, Nebraska.

I made a brief review of the available literature and I was unable to find any similar cases reported, so I am presenting to our society, these two case reports for your comment and discussion.

Case No. 1 is as follows:

C. M., white, male, age 50 years, entered the dispensary service March 1, 1925. His chief complaint was a purulent discharge from several openings over the buttock and about the anus.

Family history: Negative.

Past history: Usual childhood diseases. Always quite well until the last 5 or 6 years when he would be subject to the formation of boils over the buttocks and gluteal regions. He states, however, that these boils or abscesses would form and break and then heal and remain so for a year or more at a time. About twelve years ago he was shot in the sacral region, the bullet entering, according to his memory, just above the coccyx. However, he said the bullet was removed and he did not suffer any ill effects.

Present history: The patient states that five months ago, an abscess broke out on his left buttock and has been discharging since that time. During the last few months he lost 40 pounds in weight and had lost a great deal of strength. Other than that, his history was quite negative. He said that his bowels were regular moving each day, without the use of a cathartic. He did not pass any blood and he had no protrusion at stool, and he did not have any pain in relation to the stool.

Physical examination showed an emaciated anaemic appearing male whose findings other than for the ano-rectal region were negative.

On inspecting the ano-rectal field the following was found: A sinus tract discharging a large amount of pus, located 5 inches from the anus in the left posterior quadrant about 2 inches lateral to the mid line. A dressing forcep was used to explore the tract and could be passed toward the anus into a cavity 5 or 6 inches deep. Another opening was found to the left of the anus which communicated with the abscess cavity to which the first tract led. At the opening of this tract was a small mucous cyst. About 2 inches to the right of the anus was a third opening communicating with the abscess cavity.

Proctoscopic examination was made and the rectal mucosa was normal in appearance. The proctoscope was passed 11 inches and no pathology demonstrated.

Diagnosis: Fistula in Ano.

The patient entered the hospital March 24, and was operated on March 26, 1925.

The tracts were first injected with Methylene Blue and then with Bismuth Paste. All tracts seemed to communicate. Incisions were made in each ischio-rectal fossa. The one in the left being about 8 inches long extending from about 5 inches posterior to the anus, to about 3 inches anterior. This laid open a large abscess cavity. On the median wall of the cavity you could see the tract communicating with the opening in the posterior commissure. The incision in the right ischio-rectal fossa was about 5 inches long laying open a large abscess. On the median wall of this cavity was a tract leading to the posterior commissure. At the coccygeal region the ischio-rectal abscesses communicated and left a bridge of tissue in the median line. With free drainage of these abscesses I hoped to get granulation and filling up to the lateral tracts. Tissues were taken for section and the laboratory reported back that they were bits of inflammatory tissue.

On April 4, nine days later, I increased the length of the incisions to provide freer drainage.

On April 13, there had been no improvement and I curretted the pockets. After this the drainage became less and there seemed to be some filling, but at the end of about three weeks, the wounds again began to discharge. I then referred the patient for x-ray to determine if there might be some necrotic bone which could be keeping up the discharge. The x-ray showed, no bone necrosis; absence of the coccyx and a shadow about the size and shape of a bullet. It was at this time that the shooting history was obtained. A consulting surgeon, Dr. J. W. Duncan, was called in and it was our opinion that the bullet had never been removed and was acting as an infecting foreign body.

On May 26, we explored the wound with the intent of removing this foreign body. With the flouroscope it was demonstrated and when we cut down upon it, our shadow suddenly melted and disappeared. We then concluded that it was a remnant of my first bismuth paste injection. While exploring we found deep in the wound some thick granular tissue which had a peculiar gritty feeling. Some of this was sent
February 16, 1926.

Chief complaint: Pain and discharge in the ano-rectal region.

Family history: Negative.

Past history: Patient entered the hospital 10 years ago and was operated for a fistula in ano. She states that the wound was on the right buttock and that it healed in a very short time and she was well, up to about three months ago.

Present history: At that time she entered a clinic because of weakness. In the routine examination a blood Wassermann was taken which was three plus. She was started on Neosalvarsan and after three or four treatments she developed an ischio-rectal abscess on the right buttock. Her home physician opened this but it did not heal, but instead it developed into a large open ulcer. An abscess also opened on the opposite buttock but did not break down.

She entered the hospital then on February 16 and was referred to my service.

The findings then were as follows: On the right buttock was a large ulcerated area with over hanging edges beneath which was a mass about the size of an orange. This was very hard and discharged a watery foul smelling secretion. On the left buttock was a fistula opening leading through a tract to an opening in the posterior commissure. This opening in the posterior commissure did not apparently communicate with the right ischio-rectal fossa.

Anoscopic examination showed the fistula opening posteriorly.

Proctoscopic examination: The proctoscope was passed 10 inches and the rectal mucosa was normal.
to the laboratory and the pathologist reported back that it was a colloid carcinoma.

No further operations were done.

The patient lived until about the middle of July when he developed a septicaemia and died.

At autopsy the tissues were taken en masse from the ischio-rectal fossa and sections were made from the fistula opening in the anal canal. The autopsy record as given by Dr. B. C. Russum, pathologist, is as follows: On opening the sigmoid the mucosa is unchanged. On attempting to remove the pelvic viscera, there is dense cartilaginous tissue surrounding the rectum. Just above the anal margin are fistulae tracts, granulation tissue lines these tracts and they are surrounded by dense scar tissue and gelatinous material. Coccyx missing and bones of pelvic wall are soft and sharp as from necrosis: Great deal of necrotic tissue lining the pelvic wall.

Anatomic diagnosis: Colloid carcinoma of peri-rectal tissues originating from rectum to skin surface; multiple surgical wounds about the rectum.

Pathological laboratory report by Dr. B. C. Russum, pathologist: Gross pathology: Several irregularly, shaped, red to grey, masses of tissue. Largest 3 cm. in greatest measurement. On section it is a grey, mottled with red, and edematous friable and gelatinous in places.

Microscopical pathology: Fibrous tissue base containing giant alveoli of all shapes lined with many layers of cylindrical cells which are not especially hypertrophic. The cyst like spaces are filled with pale material in which are round, vacuolated epithelial cells, many polys and some star like cells. Extensive inflammation of stroma and many glandular acini scattered about in it.

Diagnosis: Colloid carcinoma of peri-rectal tissues, left.

Case No. 2:

Mrs. M. B., 41 years of age, entered the hospital,

Operation: February 20, 1926. The over hanging edges of the ulcerated area were clipped away and tissue was taken from the base of the ulcer for microscopic examination. The tract in the left side was opened a part way to the anal margin but was not communicated with the rectum.

Pathological report by Dr. B. C. Russum. Gross pathology. Two large pieces of dense, whitish tissue covered by skin, in which there are yellow, slightly elevated places, and some soft, cyst like regions. Pus can be expressed from portions of tumor mass. Several smaller pieces of tissue, soft, irregular in shape.

Microscopical pathology. Dense tissue heavily infiltrated with inflammatory cells and containing many giant alveoli lined with hypertrophic, hyperchromatic cells. In many of the glands is pale blue material. In other sections composed of thick skin and underlying tissue, the derma is diffusely infiltrated with mononuclear, small and large, and there are a few giant cells in regions where the infiltration is especially dense. In many places are acidophilic masses in spaces or in lumina surrounded by cylindrical cells.

The tumor tissue in places loses its glandular appearance and grows in strands. Elsewhere in the tissue and in some large gland lumina there is pus.

Diagnosis: Adenocarcinoma and tuberculosis of peri-rectal tissue.

Patient referred to the x-ray department for deep x-ray therapy.

TRAUMATIC RUPTURE OF THE SPLEEN IN CHILDREN, WITH REPORT OF TWO CASES*

JOHN BUIS, M. D.,
Pender, Nebr.

Rupture of an internal organ is always of serious import. Upon its prompt recognition and immediate action, usually the life of the patient depends. Due to its location deep in the upper abdomen and protected by the ribs, the spleen is not frequently injured. Its structure is such that it is unable to withstand any great degree of force applied to it directly.

The clinical picture of rupture of the spleen is definite. The history is that of a severe blow in the back in the area of the eighth, ninth and tenth ribs, or the lower part of the left chest or the upper left half of the abdomen. At first the injury does not seem to be serious, as the victim will get up, walk a short distance, saying he is not badly hurt. He will sit down, complain of nausea and become very pale. Cold beads of perspiration will stand out on his forehead. Requests for water will be made every few moments. The body will assume the flexed position. Abdominal breathing will be absent. The pulse may be slightly above normal or entirely absent. Rigidity will be marked in the upper abdomen and tenderness will be accentuated in the left upper quadrant. The white cell count rises rapidly from 20 to 40,000.

We wish to report the following cases that have come under our care in the past eighteen months.

F. S. Age 6—January 17th, 1925, jumped from roof of a small shed and struck with left chest on post about three and one-half feet from the roof. Walked to the house a few rods away and told his mother that he did not feel well. Was seen about forty-five minutes after the accident. Was very pale, pulseless and complained of being thirsty. There were no external evidences of injury. No crepitation of broken ribs could be felt. Abdomen was rigid and tender in the upper left quadrant. He was brought to the hospital. X-ray examination failed to disclose any fracture. White cell count made two hours after the accident was 20,000. On account of the severe shock and constant requests for water a diagnosis of internal hemorrhage was made with the probability of rupture of the spleen. Five hours after the accident the patient had rallied sufficiently that an exploratory operation was considered justifiable. The abdomen was opened through a left rectus incision. The peritoneal cavity was filled with blood. The spleen was palpated and found to be torn into two pieces. It was removed and wound closed with small tube for drainage. Except for a small stitch infection, the patient made an uneventful recovery and left the hospital in two weeks.

February 17th, we were asked to see him again as he did not wish to be about and wanted to remain in bed most of the time. Examination was negative. There were no specially enlarged glands as we were led to believe from the literature. Blood count at this time was, red cells, 5,000,000; whites, 10,000. Differential count, polymorphonuclears, 48; lymphocytes, 52.

June 14th, 1925, had a severe attack of tonsillitis with temperature of 105; pulse 140; respirations 40. Since that time he has had no infection of any kind. Examination July 30th, 1926, is as follows:

Height, 53 inches; weight, 71 pounds. Is well developed boy for his age. Cervical and axillary glands are not palpable. Inguinal, palpable but not enlarged. No increase in number. Chest at full expansion, 27 inches. Expiration is 25 inches. No abnormal breath sounds in lungs. Heart, no murmurs, apex impulse not visible, usual area. Pulse 96 when sitting. Went to 126 after fifty hops on one foot. Back to 96 in one-half minute. Tonsils not enlarged. Teeth, no cavities or signs of decay.

Blood—Hemoglobin, 80, red cells, 5,160,000, whites, 10,000, polys 40, lymphocytes 50, basophiles 6, eosinophiles 4.

L. G. Age 12—June 9th, 1926, had runaway with hay-rake. Was seen about half hour after accident. Complains of pain in left chest, worse on deep inspiration. Very pale with beads of perspiration over face and forehead. Asks for water every few moments. Examination—pulse 90. Has crepitation in back where eighth, ninth, tenth and eleventh ribs are fractured. Abdomen rigid and tenderness most marked in upper left quadrant. X-ray examination confirmed fracture of ribs.

White cell count an hour after accident, 40,000.

Differential count, polys 84, lymphocytes 14.

Transitionals 1, eosionphiles 1.

Patient was given one-eighth gr. morphine immediately after accident; after removal to hospital a quart of salt solution subcutaneously. Four hours after the accident the abdomen was opened through a left rectus incision. Spleen palpated, a rent was felt on its inner surface. Pulled up into the wound and bright red blood was seen coming up in small waves with each systole of the heart. Spleen removed. Patient reacted well after the operation and except for uncontrollable desire for water was fairly comfortable. Made uneventful recovery and discharged from hospital in ten days.

Blood findings on successive days after operation:

2nd day, reds 4,800,000, whites 18,200.

3rd day, reds 4,600,000, whites 10,500, polys. 92, lymphocytes 8.

5th day, reds not counted, whites 9,000.

7th day, reds 5,000,000, whites 13,000, polys 75, lymphocytes 23.

9th day, reds 5,620,000, whites 14,800, polys. 71, lymphocytes 26.

15th day, reds 7,390,000, whites 18,000, polys. 68, lymphocytes 32.

33rd day, reds 5,730,000, whites 7,400, polys. 50, lymphocytes 50.

July 31st, reds 5,120,100, whites 8,800, Polys. 32.

Lymphocytes 62, basophiles 4, eosinophiles 2.

There is no glandular enlargement. Present weight is 77 pounds, within one pound of what it was before his injury.

Teacher: "Johnny, your conduct is outrageous. I shall have to consult your father."

Johnny: "Better not, teacher; it will cost you $2. He's a doctor."

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*Read before Elkhorn Valley Medical Society Meeting, Norfolk, Nebr., August 2, 1926.

TREATMENT OF PERTUSSIS WITH ESPECIAL REFERENCE TO VACCINES

H. D. MYERS, M. D.,
Howells, Nebraska.

This spring when our city schools closed an epidemic of whooping cough had just begun. The festivities which go with the closing of the school added fuel to the flame so I had occasion to meet 71 cases of pertussis in my locality since the middle of May, 1926. I treated every one with vaccine if permitted to do so. If not I resorted to sodium bromide and antipyrine, or occasionally sedatussin-Lilly. I am free to say that I consider the mixed vaccine far superior to anything that I have so far used and I wish to give you my method of treatment and conclusions on its use. My method is no better than many others but I have found it very successful in my hands and I give it to you for your consideration. Of the 71 cases, in age they range from 43 years to 2 months. The oldest case was a drayman of 43 years who was in bed 2 weeks, was in the third week before I saw him. Vaccine did him no good whatever. One child of 2 months had begun to cough before the vaccine was used. In the other I used it as a prophylactic entirely. Sixty per cent of cases ranged from 2 to 8 years of age. I started with ½ cc. intramuscularly or subcutaneously and double dose every 3 or 4 days. If child has started to cough I give 1 cc. as first dose irrespective of age. I want to say that I have tried this out pretty thoroughly this year. After you are sure your patient can take horse serum you don't need to be afraid to give pertussis vaccine. I would give it every day if I were treating my own child and I noticed it had a good effect on him. I find many doctors are prejudiced against pertussis vaccine. I watched 4 or 5 cases in my own immediate neighborhood very closely in which parents allowed me plenty of lattitude and I found I could give them their rest and restore their "pep" in a few days. In not one case was this a failure if I got on the case the first 10 days of the disease. Some cases developed whooping cough after taking the vaccine but the course was shortened about one-half. Of the 71 cases not one had a complication of any kind. If I had a child in which I wanted to be positive of its immunity, and the rest of the family had whooping cough or the child was exposed daily, I would give him one dose weekly after giving him 3 or 4 doses 3 days apart. Let the rest whoop around him all they please and cough in his face all they please, you can prevent his getting it. I did this 3 times to my own satisfaction this year. Of course fresh air is just as essential to the child taking vaccine as to the child taking sodium bromide and antipyrine or any other cough medicine and the hygienic surroundings should be improved if possible. It seems that the family of 10 or 15 that are not the best off financially are always the first ones to get these diseases and are the ones that get them the hardest because of the housing facilities being the poorest, etc. I made a price for vaccine of $1.00 a dose and tried to show people its advantages and in my community one has no trouble to get the chance to give it. I was able to control the epidemic and there are only a few cases left in my locality. If I am not permitted to use vaccine I do not start any treatment till the third week, unless they insist when I give a placebo. Sleeping apartments in warm weather should be outside—or in one room with the windows in the next room open. A tight band about the abdomen centrally located over the stomach will sometimes prevent vomiting.

FURUNCLE OF THE NOSE

Thomas J. Harris, New York *Journal A. M. A.*, Dec. 19, 1925, reports a case of furuncle of the nose resulting in septicemia, which was treated successfully by injections of mercuorchrome. This case is instructive on a number of accounts. First, because of the etiology—an innocent appearing pimple in the nose of a healthy young girl following an incision on the third day gave rise to a swelling which extended to the cheek and eye, accompanied by high fever. There were numerous foci of suppuration with staphylococcus infection of the blood, septic pneumonia and endocarditis, with recovery at the end of two months. Except for the fortunate recovery, the history of the case is not unusual. In the judgment of all who observed the case, the final recovery was due to the use of mercurochrome-220 soluble, 5 mg. per kilogram of the body weight in a 1 per cent solution, as recommended by Young. In all, four injections were given, none of them followed by any untoward results. In spite of the fact that there are cases on record of acute nephritis following its use, any unqualified statement that the cure was due to the mercurochrome cannot be made because of the fact that the patient had two transfusions. However, Harris strongly recommeuds its use under similar circumstances.

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THE HARRISON NARCOTIC LAW AND ITS ENFORCEMENT

Physicians suffer almost daily annoyances from the narcotic law. As law-abiding citizens they are willing to do the utmost necessary to make the law effective; but the profession rightfully rebels against bureaurocratic rules that make every physician a potential criminal. The White Cross — International Anti-Narcotic Society — forcefully says:

> "The White Cross is convinced that narcotic addicts are sick people who need the care of physicians like other sick people. May we invite your attention to the Smoot Narcotics Bill (S. 4085) and the identical Green Bill, and to their effect on the medical profession, if they are passed by Congress.
>
> "Physicians have for years been hampered beyond endurance by arbitrary regulations whose slightest violation is punished with fines and imprisonment often making it impossible for honest doctors to treat narcotic patients. An even worse result is the creation of organized armies of drug peddlers to whom the addict is forced to go when his doctor is not allowed to give him care.
>
> "These restrictions are no part of the law. The Harrison Drug Law expressly provides that its limitations on dealers should not apply to physicians in their regular professional practice. The restrictions are simply Revenue Bureau measures. While issued under color of carrying the law into effect, and doubtless with good intentions, they have reversed the intent of Congress and filled doctors with dread of prosecution until they dare not act.
>
> "The United States Supreme Court has recently declared some of these regulations unconstitutional. The Revenue Bureau, lest its unwarranted power should slip away, has now come out openly and introduced these new bills, inflicting the extreme penalty on doctors who dispense narcotics unless to a patient in hospital. It is almost incredible that a bureau whose sole function is collection of revenue should assume to say that it and it alone is competent to direct American physicians in the practice of their profession. Moreover, if these bills become law it will not only bind the doctors hand and foot as regards narcotic patients, but it will open the way to still further invasion of the freedom of the medical profession. Why may not the Revenue Bureau go ahead and forbid calomel? Why not forbid quinine?
>
> "The United States is the only nation imposing such restrictions. In Great Britain the Ministry of Health in a recent official publication deprecates even the registration of addicts as "impairing the confidential character of the relation between doctor and patient."

Physicians are called upon to register their protests with their congressional representatives. These bills introduced with the prestige of the revenue bureau and backed up by sinister outside influences, will undoubtedly be rushed through congress in December, unless strong and organized opposition overcome them. If physicians will not look to their own interests, nobody will do so for them.

THE MEDICAL SOCIETY OF THE MISSOURI VALLEY

Omaha was the scene, during the week of September 15th, of the annual meeting of the

Medical Society of the Missouri Valley. These meetings, with one exception, were held in the auditorium of the new Medical Arts Building, and served a double purpose in bringing together the profession in the Missouri Valley, and in dedicating this splendid new building.

The medical and dental professions have every reason to feel proud of the fact that a building has been erected where they can find a home, both for the practice of their professions and for the meetings of their various societies. Omaha as a city is to be congratulated that the professions have been progressive enough to give an enterprise of this kind such generous backing. Other cities have found a building of this character extremely profitable and of great advantage, both to the professions and laity, because of the fact that a better feeling seems to exist within the professions when they are housed together, and because the layman feels that an office in such a building stamps the doctor or dentist as a man in whom absolute confidence can be placed.

The auditorium was comfortably filled at all sessions with men from all portions of the valley. The fact that the program was composed of such excellent papers was probably responsible for the good attendance. The outstanding features of the first day were the papers on the feeding of the newborn, and the portrayal, for the first time, by means of statistics, of the definite relation between focal infection and systemic diseases. These were followed with discussions by both members and visitors. The evening session was followed by a smoker, which was most enjoyable because it gave the men an opportunity of meeting and talking over both the papers of the day and the happenings of the past year.

On Thursday the scene of the meeting was changed to the Council Bluffs Clinic. Very able talks on lung surgery, orthopedic problems and gall-bladder disturbances were presented in this beautiful building. In the afternoon the session was resumed in the auditorium of the Medical Arts Building, where the program followed out the idea of post-graduate instruction rather than the simple presentation of papers.

Thursday evening was spent at the Field Club. "Not a banquet — merely a dinner". (We quote from the program). Short addresses were made by the Ex-President of the American Medical Association, Dr. W. A. Pusey, of Chicago, and by the President-elect of the American Medical Association, Dr. Jabez N. Jackson, of Kansas City, Missouri. Dr. Donald McCrae, of Council Bluffs, acted as toastmaster. The presidential address by Dr. A. D. Dunn attracted more than passing interest. Scholarly in its presentation, and philosophical in its content, this address on "Some Advantages of the Experimental Attitude of Mind in the Practice of Medicine" is to be highly commended as one much out of the ordinary. The dinner was followed by an excellent musical program. The profession have every reason to feel proud of those of its members and their families who appeared thereon.

The arrangements of this delightful evening's entertainment were largely made by Dr. Earl Sage in conjunction with the Women's Committee, the personnal of which was as follows: Mrs. A. C. Stokes, Mrs. Donald McCrae, Mrs. A. D. Dunn, Mrs. B. B. Davis, Mrs. J. J. Keagan, Mrs. H. von W. Schulte, Mrs. J. E. Summers, Mrs. Sanford Gifford, Mrs. Adolph Sachs, Mrs. A. J. Henske, and Mrs. F. W. Heagey.

At a late hour this session adjourned and was taken up again on Friday, when the program was replete with interesting and unusual papers and clinics.

No meeting in Omaha has ever approached in quality and diversity of program this past meeting of the Medical Society of the Missouri Valley. It was the idea of the President, Dr. A. D. Dunn, that this meeting should be largely one of post-graduate instruction rather than one that followed the ordinary deadly routine of a medical meeting. There is no doubt in the minds of any who attended this session that Dr. Dunn and his co-workers have succeeded in every detail. The clinics, both in the auditorium of the Medical Arts Building and at the Council Bluffs Clinic were much above the average, and presented to all of us material in a way that we could not help but be interested in, and made us feel that we had profited by being present. There is no reason at all why this idea cannot be followed out in the future, and thereby develop in this Missouri Valley a society such as flourished here some ten years ago, and which would equal, if not surpass, both in size and accomplishment, similar societies in the United States. The complexity of subjects and diversity of the material, together with the increased number of medical men, and the distance to be traveled, make the larger societies more cumbersome and unwieldy. It seems to me that it behooves the sectional societies, the type such as the Medical Society of the Missouri Valley, to take upon themselves this burden of bringing the men together in their various sections and giving them this post-graduate instruction.

We have in our valley here about seven medical schools. We scarcely need look further for men to appear on programs constructed with the basic idea of post-graduate instruction. The faculties of the scientific departments of these universities have no doubt most interesting and oftentimes startling work to present if they are merely given an opportunity. The character of the program of this meeting well illustrates this point, and those of us who are in the habit of attending various medical meetings find that more and more the heads of scientific departments, whether included in a medical school or not, have material to present to the profession that is of great interest and value.

The new officials of the Medical Society of the Missouri Valley for the coming year are as follows: Dr. T. G. Orr, Kansas City, Missouri, president; Dr. Fred Moore, Des Moines, Iowa, first vice-president; Dr. James M. Patton, Omaha, Nebraska, second vice-president; Dr. O. C. Gebhart, St. Joseph, Missouri, re-elected treasurer; and Dr. Chas. W. Fassett, Kansas City, Missouri, re-elected secretary. The Executive Committee is composed of the following: Dr. T. G. Orr, ex officio; Dr. Donald McCrae, Council Bluffs, Iowa; Dr. P. T. Bohan, Kansas City, Missouri; Dr. J. M. Mayhew, Lincoln, Nebraska; Dr. Granville Ryan, Des Moines, Iowa; Dr. J. E. Summers, Omaha, Nebraska.

This is the first time that an executive committee has been appointed in this society. This, along with several other changes that were made by the society, augurs well for its future. There is no doubt that the distribution of the responsibility on the executive committee will relieve the president of much routine and laborious detail in planning the meetings.

—F. W. Heagey.

THE TREATMENT OF TABETIC OPTIC ATROPHY

One of the most dreaded manifestations of neuro-syphilis has always been optic atrophy. It was justly dreaded because the ordinary treatment of lues was powerless against it. In spite of systemic treatment, often thorough enough to render the blood Wassermann negative, the atrophy usually progressed to practically complete blindness. We were taught that this was a so-called primary atrophy, probably caused by toxins from elsewhere in the body causing degeneration of the nerve fibers. Stargardt, however, and others, found evidences of an active infiltration in the meninges surrounding the nerves and chiasm, and recently a few observers, such as Igersheimer, have found spirochaetes in the pial sheath close to the nerves. This means that there is a stage of active inflammation in the process, and suggests that if this can be stopped, the degeneration of the nerves should also come to a standstill.

The difficulty is that drugs given by vein or intra-muscularly reach the cerebro-spinal fluid in such insignificant quantities as to be ineffective. Several methods have been tried to obviate this difficulty in the treatment of tabes and paresis. At first it was thought that salvarsan might be more effective than mercury but results were disappointing. Modifications of salvarsan such as silver salvarsan and sulpharsphenamin were tried, hoping that they would have superior penetrating qualities, or be effective in smaller quantities. In spite of a few encouraging reports, results in general, especially in optic atrophy, have been much the same as with salvarsan. Tryparsamide is being used extensively in paresis and tabes with some apparently favorable results, but unfortunately, as was true of atoxyl, the first synthetic arsenical proposed by Ehrlich, tryparsamide possesses specific toxic properties for the optic nerve, actually causing optic atrophy in some cases, and being absolutely contraindicated where atrophy is already present. Before giving tryparsamide a careful examination of the eyes, including visual fields, should be made, and they should be watched carefully during treatment. I have seen two cases where neglect in this respect caused serious damage to the nerves.

Spinal drainage followed by salvarsan, as advocated in this country particularly by Dercum, has its adherents, and would seem a logical method of increasing absorption of the drug by the central nervous system. Stokes and Osbourne, however, found the results to be little superior to general treatment. The intra-spinal injections of salvarsanized serum by the Swift Ellis method is probably the one most in use by syphilologists in this country today, and here there can be no doubt that the results are better than with the older methods. While the amount of drug actually injected seems too small to kill many spirochetes, an aseptic inflammation of the meninges is produced which increases their permeability so that more of the drug is absorbed from the blood stream, and this is quite possibly the most important factor. Ophthalmologists have been so pessimistic in the face of optic atrophy that not many large series of cases treated by this method have been reported. Reports such as those of Zimmerman, Gennerich, and Fordyce show, however, a number of cases which have been definitely arrested, and in a few improvement in vision has occurred and been maintained. With the idea of getting the drug, and whatever reaction it might cause, nearer to the optic apparatus, Suker used injections of mercury bichloride (1/50 gr.) into the lateral ventricle. We tried this in one case and then, upon suggestion of Dr. J. J. Keegan, adopted the much simpler method of injecting the same drug into the cerebello-medullar cisterna, following this with an intra-venous salvarsan injection, inunctions, and potassium iodide. Several cases were reported in this Journal in 1922 and since then, with Dr. Keegan, I have been using the method in every suitable case. A detailed report of these cases will appear shortly elsewhere and it will suffice to state here that the results have been most encouraging. Only those patients were treated who had a positive spinal fluid Wassermann, and a vision of about 20/200 or better in one eye. Improvement in vision occurred and was maintained in several cases and in more the condition did not progress after treatment was begun. Several have been watched now for five, four, and three years. To us, this has seemed a more logical method than the intra-spinal route, and when the injections are given by one familiar with the technique of cisternal puncture, at least as safe.

But the important thing is the recognition that these cases are not all hopeless, and that, as Fordyce says, a case of optic atrophy with a positive spinal fluid Wassermann, is not receiving proper treatment by the intravenous and intramuscular methods alone. With the methods of malarial inoculations, as used in paresis, I have had no personal experience, but reports from the Prague Clinic are encouraging and in a patient with symptoms of paresis and optic atrophy, I see nothing to contra-indicate its use.

—Sanford R. Gifford.

MEDICAL TREATMENT OF SENILE CATARACT

The medical treatment of beginning senile cataract seems to bring forth much comment on both sides of the question. About three years ago Dr. F. W. Dean of Council Bluffs, Iowa, presented a paper on the medical or abortive treatment of cataracts with subconjunctival injections of cyanide of mercury. He reported end results of about one hundred patients. Improvement was shown in about 68% which is a fairly good percentage of benefit from medical treatment of most conditions as serious in results as cataracts. Dr. Dean was kind enough to send us a copy of his paper along with his technique. The treatment is rather simple and attended with a minimum amount of risk. During the past three years we have used the treatment in about fifty eyes with beginning cataracts. Very few of the eyes have been restored to normal vision, but in several cases we are certain that the patient has retained enough vision to warrant its place as good therapy.

Our results accord with those of Dr. Dean in that we have had much more success in the cortical or striate cataracts. The best results were obtained in those cases which were injected early, when the dimness of vision was beginning or when the opacities were fine and small.

We have supplimented the subconjunctival injections with an alkaline iodide ointment and for this reason cannot claim all the results for the injections but at present feel that the subconjunctival injections are the greater factor in the improvement.

In view of the recent work done, and reports in literature of the medical treatment of cataracts we feel that it has a decided place in eye therapy. It is in no way offered as a substitute for cataract surgery but as a preventive measure in certain cases. In some cases it appears to retain vision in the better eye while the more mature cataract advances to the best stage for operation.

The above suggestions are reported in the hope that more men over the state will investigate the merits of conservative or abortive treatment in cataracts. Our experience as yet is quite limited, but we hope at some later date to have more definite information.

—J. C. Tucker.

HOSPITALIZATION

In a recent letter to the "Public Pulse" department of the Omaha World Herald by the writer, regarding the expense of the supposedly necessary hospitalization of patients and the inability of the man of modest financial circumstances to afford this, he took advantage of the rather overwhelming publicity given to the illness and death of Valentino, to comment upon the elaborate surroundings of the unfortunate "star" both at the time of his seizure with an "acute abdomen", and the subsequent costliness of his hospital quarters and the professional attentions of his physicians and special nurses. In comparison a case was narrated of a poor renter taken ill late in the afternoon while working in the field. By a great effort he was able to reach his farm-yard, where he collapsed from the agony of an "acute abdomen". He lay by the pump until a country physician living six miles away could reach him and recognize the seriousness of the attack. The physician, after administering a hypodermic of morphine, loaded the man into his car and drove to Omaha, forty miles away. He was admitted to the University Hospital at about midnight, and a little more than an hour afterwards had been operated upon, the appendix removed and a perforated gastric ulcer repaired. The man's illness occurred at the same date as Valentino's, but fortunately he recovered without complications and has gone home. No one in this instance gets a dollar, not the hospital, not even the country physician who made it possible to save the renter's life. In justice in any similar occurrence where financial circumstances admit of payment, the doctor who renders the early vital diagnosis and service, and makes possible any life-saving procedure, should be paid for the service, and well paid, and he should receive such payment at as early a date as the man to whom his patient is brought or sent. The common custom of the specialist taking all of the available cash and the referring physician waiting for his until the farmer has harvested his next season's crop, is not ethics of fair dealing. Every man knows when he is honest and no rules of ethics can change the fact. That the laborer is "worthy of his hire" applies as well to medicine as it does to any and all callings out of which the bread and butter of today, as well as that for provisional retirement, is acquired.

Hospitalization in the majority of instances is not necessary; at times it is life-saving, again it is only the makeshift out of which the physician seeks to have things easy for himself. In all but the few private hospitals employing only graduate nurses, the nursing is done by pupil nurses who have to learn at the expense of the patients. The resident internes acquire their knowledge in the same way. So there is much mythology about the great advantages of hospitalization. For certain work where equipment may be difficult to substitute in the office or the home, and special laboratory or x-ray facilities are not to be had, in such instances and a few others, the hospital has admitted advantages. Only the well-to-do, or the poor at the city's or state's expense, can afford to be sick in a modern hospital, the expense of which has practically doubled in the last few years, and it is hard to save money in the Middle West for this "rainy day". The student nurse spends as much time in her training as does the medical student in his medical college, and when she graduates she knows about as much of the duties of a real nurse at the home, at the bed-side, on the farm, in the village, or in the city, as does the graduate medical student as a physician, before he has commenced his hospital interneship, when in reality he knows a great deal, but of its practical application he really knows little.

The ability of hospitals to function, except public institutions and the few that are adequately endowed, is due to the fact that in subtraction from the burdened overhead, the pupil nurses, working for pin money, keep the fires a-burning and in the end they join the throng of novices asking and getting from those who many times can illy afford it, the same high pay as do nurses of years of general experience. In addition to the usual hospital charges which include bed, board, and pupil nursing, everything else besides drinking water, is charged extra. For efficiency, it is in some instances necessary to employ special nurses, which doubles the expense to the patient. Standardized, non-public hospitals are the brooders of State Medicine. An illness of several weeks or months often so saps the finances of the patient, that for the physician in charge there is not left a fair compensation for the service rendered. Physicians can regulate the Training School problem if they have the will. If much of the time spent in studying subjects, the knowledge of which is not employed in the taking care of the sick, were given to *real bed-side instruction* by men and women who are experienced in the work, and are teachers, too, three years of such work would turn out a nurse, if she had any fitness for the calling, far superior to the today product. A young woman of the proper make-up to become a successful nurse, should be first, by nature fitted for the calling; second, she should have a fair education and a desire for more. She should not be a clock-worker, a habit acquired in the Training School and seldom given up after graduation. Cultivating to the best purpose the five senses that Nature gives us, is of more value to the nurse, than many of the supposed essentials in the curricula of the schools, which today are turning out structures illy framed, upon foundations not of the best interest to the sick. Better training of nurses will lessen the necessity of hospitalization, thus decrease the expense to the sick, and add to the income of the physician.

—John E. Summers.

EDITORIAL PARAGRAPHS

Does a patient "suffer with", or "suffer from", or both?

The physician who will not do his duty to his profession, deserves nothing from the profession.

Remember that we all are human, that there are very few supermen and that opportunity does some things for us.

Ephedrine, a Chinese drug, the active principle of a lowly herb, is at present attracting a great deal of attention. It is possible that it may supplant epinephrin.

The vacancy left in the council by the death of Dr. W. S. Fast has been filled by President Lehnhoff, who appointed Dr. L. W. Rork of Hastings to fill out the unexpired term.

Let us hope that the entire medical profession will not get excited about the question of a bread and water diet, as a balanced ration. Neither does "moonshine" help to balance a diet nor contain vitamines.

We need less coddling of prisoners, more sympathy for victims and less for the criminals, less talk about the irresponsibility of confirmed criminals, more even handed justice and less mawkish sentimentality.

Physicians convicted of crime involving moral turpitude and having their licenses revoked, realize that their position is akin to the man without a country. Several recent cases in this state forcibly bring this out.

A New York physician, in a desperate case, transfused a pint of his own blood into the veins of one of his patients. Reminds the editor of a time, when after doing a tracheotomy, for laryngeal diphtheria, he aspirated the opened larynx with his mouth which was then a standard emergency measure, and was supposed to indicate the bravery of the physician.

A county society secretary in Illinois (*Illinois Medical Journal)* wonders if it would not be advisable for the position of secretary to be passed around and in this way for more of the men to see the inside workings of the organization. There are a great many doctors, who have no conception of the time expended and energy required to carry on the society.

The tentative program for the Inter-State Post Graduate Assembly of North America, to be held at Cleveland, Ohio, October 18-22, 1926, promises a vast array of good things in diagnostic clinics, scientific papers and discussions. 110 speakers are listed. The Inter-State has become the foremost general clinical society in the United States within a very few years, because a program is presented each time that appeals and in a manner that appeals to the average medical man.

A layman of above ordinary intelligence and good education told the editor that his family had within a period of about six months consulted four general practitioners and seven specialists in illnesses of members of the family and had obtained a fine array of diametrically opposite diagnosis of apparently simple conditions — and his children were still ill. This cannot be said to be showering encomiums on the medical profession — and his wrath was perhaps justified. It would be interesting to know whether, if he had employed one "honest to goodness" family physician and had stuck to him — whether he would not have been just as well off.

MEDICAL LIABILITY

A physician may render himself liable to prosecution by thoughtlessly answering a question for some individual or corporation concerning a patient.

A few days ago I received the following letter from an insurance company of Blank, Nebraska. The medical director of this company is a physician of high standing and of high medical ideas.

Dr. Czar Johnson,
Lincoln, Nebr.

Dear Doctor:

We are enclosing a report blank for your use in reporting on the claim of one of your patients who is a policy holder in this company. It is not customary for insurance companies to assume any expense in connection with obtaining reports for claimants, but we are especially anxious to secure prompt and complete information looking to an equally prompt settlement of the claim, and we are, therefore, enclosing our coupon for fifty cents which you may return with your report. Inasmuch as we will follow this practice in all future claims of your patients who are policy holders in this company, there will no doubt be a considerable number of these reports requested from you from time to time.

You may give us complete information in each case with the assurance that it will be made use of without the policy holder being advised of this service on your part. This saves considerable embarrassment in many cases on the part of the attending physician.

Assuring you of our cooperation at all times, we are

Very truly yours,

The blank mentioned is as follows:

PHYSICIANS REPORT OF ILLNESS OR ACCIDENT
TO
THE BLANK LIFE OF BLANK, NEBRASKA

Claimant must pay cost of furnishing this report.

Report of examination and treatment of Mr..........

1. Name of disease or accident causing disability... Specify whether disease or accident............ Give date of origin....... Has he any other disease? If so, what?..........................
2. State precisely the nature of the illness or accident; if hand, foot or eye, state whether right or left. ..... (Give complete diagnosis of the case.) ....
3. If disease, is it acute?...Chronic...Venereal?... Are any complications likely to arise?..........
4. Has he suffered from same disease before?...... When? ....
5. Does the illness or injury necessarily confine him strictly to the house?..........................

From the...day of...19... to the...day of...19....

6. Was claimant in hospital?.......If so, give date entering......Date leaving.......What operation if any was performed?......................... When? ....
7. How many times and on what dates have you visited him at his HOME?.....Times, Dates.....
8. How many and on what dates has he been to your office for treatment?....Times, Dates...........
9. Has partial disability terminated?.............. If so, on what date..............................
10. Has total disability terminated?................. If so, on what date..............................
11. If still disabled, about how long do you estimate it will continue?........Is he improving?........
12. Is the above named illness or injury the sole cause of his disability?........................
13. Does the claimant use intoxicating liquors, drugs or narcotics to excess, or to a degree to impair his health? ....
14. Has the claimant any chronic or constitutional disease, infirmity, or physical defect or deformity? If so, what?..............................
15. Have you reported claimant for any other company, association or society for this disability? If so, give particulars?.........................
16. In your opinion is claimant a desirable risk for health and accident insurance?.................

I hereby certify, that the foregoing answers and statements are absolutely true and correct, without evasion or reservation and made subsequent to a thorough examination of claimant by me.

Date.......... ....Attending Physician

Graduate of................... Address...........

NOTE

DOCTOR: We have tried to ask only such questions as are absolutely necessary to the proper adjustment of this claim. In some cases you may wish to give us additional information in confidence. Therefore, whatever you may see fit to say on the back of this report will be considered strictly confidential.

The physician is requested by the above letter and insurance report blank to commit an illegal and unethical act.

Information obtained in the examination and treatment of a patient is privileged and cannot be divulged without the risk of prosecution, unless a written consent of the patient is first secured.

Patients should be informed that the answers to the questions on insurance blanks like the above constitutes a written record of past and present disease and may cloud or invalidate their insurance. If the patient knowing this authorizes the information requested, the physician should bear in mind that he is rendering a medico-legal opinion and also making a sworn statement of facts.

It is unethical and reprehensible for a physician to furnish privileged information regarding his patient secretly to an individual or group of individuals regardless of their status or desires.

Doctors will save themselves and others trouble and profit materially by giving requests for information concerning patients careful consideration before complying.

Czar C. Johnson,
Member Medical Defense Committee.

THE AMERICAN COLLEGE OF PHYSICAL THERAPY

The fifth annual meeting of the American College of Physical Therapy will be held at the Drake Hotel, Chicago, October 18 to 23, under the presidency of Dr. John S. Coulter of Chicago.

A splendid program has been arranged by Dr. A. R. Hollender, chairman of the committee. The first two days of the meeting will be devoted to instructions in classes, round table talk, and informal discussions; the following two days will be taken up by the reading of papers and the addresses of the invited guests.

No physician who is interested in Physical Therapy can afford to miss this meeting.

For complete program address Dr. Roy W. Fouts, secretary, 511 City National Bank building, Omaha, Nebr.

EFFECTS OF SUBTOTAL GASTRECTOMY ON GASTRIC SECRETION

The effects of subtotal gastrectomy on gastric secretion were studied by Sidney A. Portis and Bernard Portis, Chicago (Journal A. M. A., March 20, 1926), by aid of a Pawlow pouch in dogs. Briefly, the gastric secretion in dogs after a subtotal gastrectomy shows an absence of free acid but a high combined acidity, whereas the secretion from a Pawlow pouch, representing a similar part of the stomach, continues to secrete free acid after resection. The results indicate that the factor of neutralization plays the most important role in explaining the absence of free acid observed experimentally and clinically in the gastric secretion after subtotal gastrectomy. The artificial achylia produced may establish an entirely new and possibly harmful bacterial flora of the gastro-intestinal tract, with consequent gastro-intestinal abnormality.

WHY YOU SHOULD PAY A DOCTOR'S BILL PROMPTLY

1. Your need is almost always urgent; you expect him to respond quickly.

2. He is a one-man power—no one else is working for him.

3. His only capital is his education, skill and time, which he converts into money.

4. He must be well clothed and fed, and have a modern equipment, in order to give you good value for your money.

5. He must pay his own bills promptly, else his reputation will be lowered and he will become discouraged.

6. An underpaid, overworked or discouraged physician is a dangerous man in any community.

7. A good physician wants to relieve human suffering without thought of money but he must have the latter, and unless you do everything you can to pay him promptly, he will feel as you would, discouraged, working for nothing and you may find that he has lost interest in you at the time when you need him most.

THEY MADE A MONKEY OF MICK!

G'marnin, Mrs. Finnegan.

G'Marnin, Mrs. Clancy; an' where have ye been so airly, this fine day?

Oh, I've been over t' th' Harspittle, makin' arrangements t' hev Doctor Wheelwright fix up me man Dinny with them monkey glands they do be talkin's so much about.

Sorra bit of good will it do him; didn't I hev me old man fixed up be Doctor Nugent? an' divvle a bit of good it done him.

An' didn't it make him frisky, at all, at all?

Indade an' it did not; he hasn't done a stroke of work iver since; he spinds all his time sittin' up in the cherry-tree, back o' the kitchen dure, grinnin' an' makin' faces at me, an' atin' peanuts—Med. Pickwick.

FORGET IT!

"If you see a tall fellow ahead of a crowd,
A leader of men, marching fearless and proud,
And you know a tale whose mere telling aloud
Would cause his proud head in grief to be bowed,
It's a pretty good plan to forget it.

If you know of a skeleton hidden away,
In a closet and guarded and kept from the day
In the dark; and whose showing, whose sudden display,
Would cause grief and sorrow and lifelong dismay,
It's a pretty good plan to forget it.

If you know of a thing that will darken the joy
Of a man or a woman, a girl or a boy,
That will wipe out a smile or least way annoy
A fellow, or cause any gladness to cloy,
It's a pretty good plan to forget it."

THE SOCIETIES

A picnic meeting of the **Custer County Medical Society** was held at Victoria Springs, State Park, August 10. Dr. Edwin G. Davis, Omaha, gave a paper on prostatic disease. The meeting was marred and cut short in mid-afternoon by a rainstorm.

The **Madison County Medical Society**, September 7, convened over a dinner at the new Hotel Norfolk, Norfolk, and listened to a lecture by Dr. Edwin Davis, Omaha, on the treatment of old prostatics, featuring sacral anaesthesia particularly.

HUMAN INTEREST TALES

Dr. O. C. Reed has located at Lexington.

Dr. F. A. Brewster, Holdrege, is building a hospital.

Dr. L. L. Wood has moved from Silver Creek to Holdrege.

Dr. and Mrs. J. G. Muir, Milford, motored to Wyoming last month.

Dr. L. J. Homan, has located at Howells as successor to Dr. Boland.

Dr. E. L. Husted and family, Scribner, spent a month in California.

Dr. and Mrs. J. Stanley Hill, McCook, spent their vacation in Colorado.

Dr. L. A. Carter, O'Neill, spent several weeks at the Mayo Clinic recently.

Dr. and Mrs. L. F. Chapman, West Point, visited Colorado points in August.

Dr. and Mrs. G. H. Morrow, Columbus, toured to the Yellowstone in August.

Dr. and Mrs. James Stone, Sutton, have returned from a short trip to Europe.

Dr. and Mrs. B. E. Morrow, Seward, spent some time at Pelican Lake, Minn.

Dr. J. G. Muir and family, Milford, motored to the Yellowstone park, in August.

Dr. and Mrs. John R. Nilsson, Omaha, spent their vacation at Spider lake, Minn.

Dr. Lincoln Riley and grandson, Wisner, visited the Colorado mountains in August.

Dr. L. W. Elwood, recently of Fairfield and Indianola, has located at Silver Creek.

Dr. Robert Lee, a Nebraska, Arcadian by birth and raising, has located at Ravenna.

Dr. J. E. Allen, of Omaha, has become associated with Dr. W. J. Davies, Fremont.

Dr. and Mrs. W. L. Albin, Lincoln, have returned from a trip to the Pacific coast.

Dr. and Mrs. D. W. Vanderhoof, Scribner, motored to Winnepeg the last of August.

Dr. and Mrs. A. O. Peterson, Omaha, took a cruise on the Great Lakes this summer.

Dr. John T. Waggener, and family, Adams, motored through Colorado in late summer.

Dr. J. B. McPherson and family, Hastings, spent a month among the Minnesota lakes.

Dr. E. P. Bachle, Liberty, has gone to New Orleans, to take a special course in surgery.

Dr. D. J. Smith, Osceola, accompanied by relatives motored to Pennsylvania in August.

Dr. and Mrs. W. O. Colburn, Lincoln, spent their vacation period at Estes Park, Colo.

The marriage of Dr. Clarence H. Folsom and Miss Gladys Rising, Omaha, is announced.

A broadcasting station has been installed at the Wayne hospital by Dr. S. A. Lutgen.

Dr. Irvin Thompson and family, West Point, made a month's trip to Pennsylvania in August.

Dr. F. M. Andrus, Lincoln, has returned from a trip to Europe with one of Peck's clinical tours.

Dr. L. V. Bilon, recently of Omaha, has become associated with the York clinic as pediatrician.

Dr. and Mrs. L. M. Shaw, Osceola, have returned from an extended visit to southern California.

Dr. R. M. Malster, Carter, S. D., visited with his brother, Dr. J. C. Malster, Stromsburg, recently.

Dr. and Mrs. F. W. Karrer, Benedict, returned from a trip to the Black Hills, the first of September.

Dr. R. D. Martin, Hastings, accompanied by his family, has sailed for Vienna for a year's study.

Dr. and Mrs. J. J. Gleeson, Omaha, spent several weeks at Estes Park and other Colorado resorts.

Dr. and Mrs. W. S. Yager, Nebraska City, made a motor trip to the Iowa and Minnesota lake regions.

Dr. and Mrs. T. F. McCarthy, Lincoln, toured the Yellowstone Park and the Pacific northwest recently.

Dr. John Gilligan, son of Dr. J. P. Gilligan, O'Neill, has become associated with Drs. Lord and Schrock, Omaha.

Dr. R. B. Adams, your secretary, spent a part of his vacation in the wilds of Canada over 100 miles from a railroad.

The Dodge County Medical society and Lutheran church interests are "talking" a $150,000 hospital at Fremont.

Dr. and Mrs. J. E. Ingram, spent part of August and September in Colorado, visiting relatives and sightseeing.

Dr. Nora M. Fairchild, of the Gifford group, Omaha, has gone to Europe to study at Basle, Vienna, Paris and London.

Dr. and Mrs. John A. Sanders, Omaha, enjoyed a two months' motor trip to important places of interest in the middle states.

Dr. and Mrs. A. P. Condon, Omaha, motored to Yellowstone park and Steamboat Springs, Colorado, the latter part of August.

Dr. C. A. Hoefer, formerly of Tilden, has located at Wisner, in succession to Dr. G. W. Bartlett, who has moved to California.

Dr. and Mrs. A. J. Young, Omaha, have gone to Europe where the doctor will do some special eye, ear, nose and throat work.

Dr. J. F. Langdon, Omaha, visited in Los Angeles recently and found it hard to shake himself loose from the ex-Nebraska medics out there.

Dr. J. D. McCarthy, Elgin, attended clinics at Rochester, Minn., for several weeks while Mrs. McCarthy was undergoing treatment at the same institution.

Dr. Miles J. Breuer, Lincoln, has been appointed deputy international director of boys' work in the Optimists club, for the district of Kansas and Nebraska.

Dr. J. North Evans, Columbus, is attending the army medical school at Carlisle, Penn. He will also take special courses in obstetrics and internal medicine in New York and Philadelphia.

Dr. and Mrs. F. A. Long, Madison, and their two daughters, Miss Frances Long, Tucson, Ariz., and Miss Harriet Long, Madison, Wis., are on a thirty day tour to Pennsylvania and the Sesqui-centennial.

Dr. Robert C. Mullong, Norfolk, is courting fame as a novelist. "Beyond Paradise" was his first creation; within a year his second book, "Small Change" was published. "Crude Material" is in the hands of his publishers and he is reported to be busy on the fourth to be known as "Wisdom Teeth."

NECROLOGY

William M. Bancroft, Lexington, Nebr.; Philadelphia University of Medicine and Surgery, 1871; practitioner at Lexington, (then known as Plum Creek), since 1871; a physician of large clientage in the early days of Dawson county; treated the wounded Pawnees fleeing from the massacre near Culbertson by the Sioux in August, 1873; member Nebraska State Medical Association; died August 16, 1926, less than two days after an attack of apoplexy, aged about 75 years.

BOOK REVIEWS

DISEASES OF THE SKIN, by Richard L. Sutton, M. D., L. L. D., F. R. S. (Edin), Professor of Diseases of the Skin, University of Kansas School of Medicine, etc. The C. V. Mosby Co., St. Louis. Price, $12.00.

The activity of the author seems endless. In a brief period of years this epoch making treatise has gone through six editions. The present edition is a handsome volume of over 1,300 pages with 1,147 illustrations and 11 colored plates.

In the preface the author modestly states, "More than two years have elapsed since the publication of the fifth edition, and the quality and the amount of new material that has accumulated in the interval speak well for the ability and industry of the men who are interested in this important branch of medicine." We may well add, the consecrated labor of the author has brought this knowledge down to the present moment.

About eight hundred new literary references, carefully selected from current literature have been added to this edition. The bibliography is encyclopedial in character and should prove of great value to research students, specialists and others who may wish to delve deeply into any particular subject.

Included for the first time are some of the rarer and more recently discovered dermatoses as Fox—Fordyce disease, mycotic paronychia (Kingery-Thienes), congenital ectodermal aplosia, chelitis actinica chronica (Ayres), ulcus vulvae acutum, glossitis rhombica mediana, achromia pacositica, and the dermatological aspect of rat-bite fever.

The general etiology of skin diseases is discussed at some length. The uric acid theory of Haig with the allied state of lithemia, gout, acute rheumatism is practically discarded as a causative factor of cutaneous lesions. Focal infections are regarded very much to the fore by the author. The work of Rosenow, Billings, Lain, Duke, and Chipman are mentioned as having directed attention to the extremely important part played by focal infections of certain organs in the causation of systemic as well as cutaneous disease. The offending agent is usually the Streptococcus viridans. It acts both directly through its toxins and indirectly by sensatizing the tissues through its role of foreign protein.

Anaphylaxis which plays such an important role in both the treatment and etiology of many diseases is well presented and the reader is given a well digested resume of various investigators.

In the field of general therapeutics the author is more or less skeptical, believing general hygienic measures of more value than drugs, with a few well known exceptions. With this view most of us will agree.

The treatment of certain obstinate and chronic dermatoses by the injection of a foreign protein is spoken of with favor, the author using an autogenous colon vaccine.

The discussion of the various maladies of the skin is well balanced. Particular emphasis is given pathology and treatment while not neglecting etiology and symptomology. The local therapeutic measures recommended are as simple as possible and based on a most extensive clinical experience. Time honored and obsolete prescriptions which have only historical value are wisely omitted.

The mechanical and physical agents as carbon dioxide, snow, x-ray, radium, actinotherapy, desiccation and endothermy are mentioned in detail. The author is an advocate of the "split dose" method in the use of radium in superficial lesions and compares this to fractional sterilization.

The crowning feature of this magnificent treatise is the wealth of fine photographs, accurately reproduced. These constitute of themselves an education in dermatology. Especially good are those illustrating erythema multiforme, psoriasis, variola, vericella, ichthyosis, hystrix, acanthosis nigricans, parakeratosis, elephantiasis of the scrotum, the several types of xanthoma and frambesia. The photomicrographs are among the best we have seen and portray the pathological change with distinctness.

One-hundred pages are devoted to syphilis, a monograph in itself. The photomicrographs are especially fine of the various lesions of this disease. In the treatment of syphilis emphasis is placed on general hygiene. A scrutinizing examination should be made of any focal infection present, thus placing the patient in the best possible condition to respond to therapeutic measures. Dr. Sutton believes arsphenamin given intramuscularly much more efficient than "neo" in the veins. Of late he is using sulpharsphenamine believing its value therapeutically lies between arsphenamine and neoarsphenamine. Of tryparsamide he speaks with conservatism, its use restricted to neurosyphilis. Optic nerve involvement is a positive contraindication. The discoid form of lupus erythematosis is regarded as the result of a general toxaemia, while the acute disseminated type is almost invariably of tubercular origin. This view will meet with general approval although we feel the last word has not been written on this mysterious disease.

Reading between the lines, one infers the author believes epidermophyton infection is at times confused with dermatitis repens. In the treatment of poison ivy it is pointed out that the antigen treatment is prophylactic rather than curative.

In his professional life Dr. Sutton is enthusiastic, resourceful and at the same time conservative; these characteristics make his writings of superior value.

Sutton's Skin Diseases should appeal to the general practitioner as a valuable guide in the treatment of a class of diseases at times discouraging and baffling. With the numerous illustrations and clear cut descriptions, this text undoubtedly is a favorite with medical students.

Aside from a busy professional career Dr. Sutton is famous as a big game hunter, fisherman, worldwide traveler and lecturer. Recently has appeared from his pen "An African Holiday", describing a game hunt in equatorial Africa.

For the first time appears the name of Richard L. Sutton, Jr., in connection with some excellent photomicrographs. Long live the house of Sutton.

—E. J. Angle.

GOITER

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BASAL METABOLISM AND BLOOD CHEMISTRY*

J. M. MAYHEW, A. M., M. D., F. A. C. P.,
Lincoln, Nebraska.

All conditions presenting the symptoms of Graves' syndrome such as tachycardia, tremor, exophtalmos, asthemia, diarrhea and sweating, with or without goitre are being determined by one or two readings of the metabolic index. From the reading of this index the treatment, often operative, has been decided. For several years a normal index has been read plus ten—or minus ten—without consideration of all factors which might help interpret the reading. Too often this interpretation bears no relation to the age, incidence, history, clinical condition, and physical examination. We will offer to show that the test must not be evaluated by itself alone. That it is of great value is known. Boothby and Sandford state in their research of 600 cases that 98% of exophthalmic goitre have a basal metabolic rate of over 10%. McCann, (W. S.) states that the diagnosis must rest on clinical observation, but as an unbiased objective method of evaluating results of therapeutic measures in thyroid disease especially as a means of controlling treatment—basal metabolic determinations are invaluable.

DuBois says that basal metabolism is probably the best guide to activity of the thyroid—but it must not be accepted blindly. Errors of 10 to 20% may be made. It is known that wide fluctuations in a daily metabolism of certain individuals occur. The first few tests of a thyroid patient may be 10 to 20% too high, and some normal individuals consistently show rates 10 to 15%, or even more, above or below normal. Various sources of error may occur, and if they happen to fall in the same direction, the result will be far from the truth. *Even, if true, meta-*

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*Read before Nebraska State Medical Association, Omaha, May 11-13, 1926.

bolism rate is not always an indication of correct diagnosis.

The cases known as border-line we should make our special study. I refer to those of simple thyroid or iodine insufficiency; of unstable, nervous mechanism; of the vagotonias, of various sympathetic nervous disturbances; autonomic unbalance, etc. In all border-line cases basal metabolic rate must be mort carefully evaluated. If such conditions as fevers, acromegaly, leukemia and severe anemias are eliminated, increased metabolic rate is accepted as strongly presumptive evidence of hyperthryoidism. Again, if starvation, hypopituitarism and hyposuprarenalism are excluded, low metabolic rate is strong evidence of hypothryoidism. Our own conclusion, after a careful study of thirty-two mild and doubtful cases during the past year shows that the basal metabolic rate cannot be relied upon for a differential diagnosis. In four cases, the metabolic rate ran well above twenty—one of these cases was a diabetic, and fell into the class of thyroid-diabetic or diabetic-thyroid. One case showed a metabolic rate on a repeated examination, of plus thirty. This was a pure case of emotional instability and her condition was brought on by divorce proceedings. Another case was the result of accident, and the last case was one of auricular flutter. One other case in this group showed a metabolism in the office of plus thirty-eight. This case was removed to the hospital and after 48 hours of rest without treatment showed a metabolic rate of 22. In two weeks time her metabolic rate was plus six, without treatment other than rests. She was without doubt a case where the organism was adapting itself toward the demands of external work. In these borderline cases — one case gave an average of minus eleven on 4 examinations. There were no other symptoms pointing toward loss of thyroid stimulus. Many of these cases had symptoms of exophtalmic goitre. Four tests were taken two to three days before surgical operations on the pelvis. They showed a rate of 25 and over. The others were true cases of forme-fruste, that is not true exophthalmic goitre, but with many symptoms of thyroid-toxicosis.

Relying on a reading of the basal-metabolism olism in these cases, led us, after careful study, to increase our rate of suspicion of thyroid disease to plus twenty to twenty-five, and to minus eight to ten.

The opportunity was given us to make an exhaustive investigation of sixteen of these border-line cases, and to determine, if possible, more accurate measures for diagnosis.

It has long been known that blood-sugar conversion is changed materially by increase of toxic thyroid material in the blood stream.

Hyperthyroidism seems to signify a functional overloading of the pancreas. Without such a functional overloading glycosuria would never occur, so we speak in these cases of a thyrogenic glycosuria. This has been strikingly proven in those cases of true thyrogenic glycosuria that have disappeared, either spontaneously or by means of x-ray treatment. The interesting fact in diagnosis in relation to this thyroid influence is the blood-sugar retention over a certain period of time beyond the normal. Ordinarily, blood-sugar after one hundred grams of glucose returns to normal ordinarily within a period of about one hour. In toxic-thyroid cases this return is delayed to two or three hours. Out of a study of the above cases, repeated several times on each one, all cases (that eventually proved themselves toxic-thyroid cases) showed a slow return to normal. All cases which eventually proved themselves to be other pathologic conditions with thyroid symptoms showed a more rapid or normal return. There is, in our mind, no question but that this is a valuable factor in the diagnosis of border-line cases.

Next is a serologic test that has, in our hands proven most valuable. In the *Schweiz, med. W'chnschr. 1920, 1, 644, K. Kottman,* reported his investigation on the colloid chemistry of the thyroid question. At that time—three cases were investigated by us and the test was then dropped.

During the last year, at the Lincoln General hospital, fourteen cases have been studied.

Principles of the Test: This test, evolved by Kurt Kottman of Switzerland is based on a twofold theory: (1) That one colloid has a protective property for another colloid; (2) that a photosensitive substance reacts more to the light in fine suspension than in coarse suspension.

When silver nitrate is added to potassium iodid in the presence of a human serum, the result is a cloudy mixture. There has been formed silver iodid, which is held in colloidal suspension by the serum which is itself a colloid. In sera, the protective power for another colloid varies. It is strongest in hyperthyroid serum, weakest in hypothyroid serum and intermediate in normal serum. In other words, the suspension of Ag. I. in hyperthyroid serum is very fine, less fine in normal serum and relatively coarse in hypothyroid serum. Now, when the colloid is exposed to the light and the developer (in this case hydroquinon) is added, the reduction to metallic silver varies inversely with the fineness of the particles in the suspension. Therefore the change from Ag. I. to metallic Ag. is greatest in the hypothyroid serum, and least in the hyperthyroid serum. Since this chemical change is evidenced by a change to a brownish color, we have a simple index to the degree of secretion. In hyperthyroidism there is little change in color, in hypothyroidism the color changes fairly rapidly to a brown that is almost black, while in normal serum, the change comes half-way between these two extremes.

Technique. 1. Five cc. of blood is withdrawn from the vein by the usual method.

2. The blood is centrifugalized to obtain the clear serum.

3. To 1 cc. of clear serum is added 0.25 cc. of potassium iodid solution (0.5 per cent) and 0.3 cc. of silver nitrate solution (0.5 per cent).

4. Mix thoroughly and carefully by shaking.

5. The collodial suspension of silver iodid formed by this mixing is exposed for fifteen minutes to a 500 candle power light held at a distance of 25 cm.

6. To the suspension is added 0.5 cc. hydroquinon (0.25 per cent) solution.

7. Readings are taken every five minutes for thirty minutes. For convenience, we grade the color changes from zero to 4 plus.

These are the only conditions which are absolutely essential. There are others, however, which if observed, make for greater accuracy, and so reduce the possible sources of error. The best and most reliable results are obtained where the patient has fasted for twelve hours before the blood is taken. Bromids used within two months before the time of the test will retard the reaction. Should the patient have taken bromids, due consideration should be given this fact in noting the result. The blood should be used as soon as possible after it is withdrawn. It is best to add the KI and the $AgNO_3$ in a dark room using a red light. This same precaution should be observed when the hydroquinon is added to the Ag. I. And last, but by no means least, blood serum from a normal individual should be used as a control.

Interpretation of Readings. From our studies and our observation of what we assumed to be normal cases, we considered a normal reaction one in which there are some evidence of color change within the first five to ten minutes and then a gradual deepening of this color to a definite dark brown within thirty minutes. When there is hypersecretion the reaction or color change is considerably retarded. At first there may be no apparent change. Even at the end of the prescribed period of observation there may be only a slight darkening. When the change comes quickly and there is a brownish discoloration in the first five minutes, this color rapidly becoming darker until it approaches black, we consider that here we have deficiency of thyroid secretion."

Under these three combined methods, cardiac cases, neuresthenia, vaso-motor ataxia, psychasthenia, nervous instability, tachycardia, myxedemia and true thyroid cases have been studied at the Lincoln General hospital during the past year with remarkably accurate results. The technique in these three tests is simple, rapid and accurate. My opinion is that every border-line case should have the benefit of this slight extra effort in the determination of their condition.

PATHOLOGY OF GOITER

CLARENCE EMERSON, M. D.,
Lincoln, Nebraska

A paradoxical situation exists with respect to the pathology of the thyroid gland. On the one hand pathologists and special students of goiter have very clear and well-defined ideas as to the alterations that occur in thyroid glands in the various types of goiter. They have a rational classification based on the histologic changes and the disturbed function. Clinicians on the other hand depart from the concise terminology expressive of the specific pathology and utilize indefinite meaningless terms. Modern text-books and recent periodical literature is replete with such terms as diffuse, nodular, cystic, parenchymatous, non-hyperplastic toxic, thyreo-toxicosis, and toxic goiter. Terms that are expressive of some clinical peculiarity, but which do not classify goiters into well differentiated types. There are outstanding exceptions to this rule. Some clinicians, notably Crile, the Mayo clinic, Percy and others, utilize quite definite pathologic entities in their classifications.

The treatment of goiter in America occupies a superlative position with respect to the rest of the world—a supremacy attributable to a better understanding of the pathology—particularly of the pathologic physiology. The work of Marine, Lenhart, Kendall, Plummer and Crile has established a relationship between the histologic pathology and the disturbed function in terms of indicated treatment. The ideal management of the several types of goiter necessitates the extension of the diagnosis to include a knowledge of the functional activity, its upward or downward trend, as evidenced by the metabolic rate and the probable histologic picture.

In this paper on the pathology of the thyroid the attempt is made to associate as closely as possible the clinical picture and the histologic and chemical findings of the gland and show why the management of abnormal thyroids must take into account a diagnosis of the specific pathology.

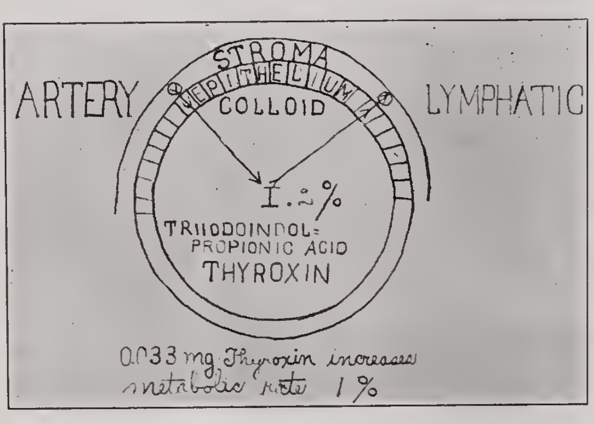


Fig. 1.

The discoveries in the field of chemical pathology when stated chronologically will furnish a quick resume of the factors influencing disturbed secretion. It may be well to state that reference is made herein only to alterations in the gland resulting from disturbed secretion. Secondary or metastatic infections or new growths are excluded.

CHEMISTRY OF GOITER CHRONOLOGICALLY

1. Ancients—Used sea-weeds empirically.
2. 1820—Iodine first used knowingly; sheet anchor for 75 years.
3. 1805. Baumann isolated iodine from gland. gland.
4. 1895. Magnus Levy showed relation to oxygenation.
5. 1901. Oswald proved iodine chiefly in colloid.
6. 1907-15. Marine and Lenhard showed that iodine:
    1. Is necessary for normal function.
    2. Is reduced in hyperactive glands.
    3. Is constant in all animals.
    4. Is variable in goitrous districts.
    5. Is in proportion of 2% in human thyroid.
    6. If below 1% stimulates hyperactivity.
    7. Variations induce histologic changes.
7. 1915. Kendall isolated active principle.
8. 1919. Plummer showed relation of thyroxin and energy production.

There is evidently a reversible action on the part of the thyroid epithelium with respect to iodine, on the one hand storing it in the colloid as the specific internal secretion iodothyrin or thyroxin, and on the other, excreting it from the acinar colloid into the lymphatics or blood stream. The cause of dysfunction and associated anatomic changes in the gland is now understood to be the result of excitation by a deficiency of iodine, either actual because of lack of it in the water and food supply or relative because of an unusual demand for thyroid secretion resulting from adolescence, pregnancy, lactation or exhaustion from foci of infection.

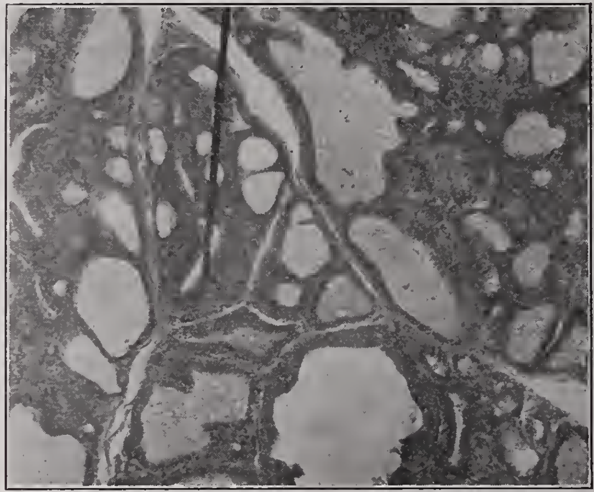


Fig. 2. Section of hyperplastic goiter showing epithelial over-growth and reduced colloid.

The prevailing opinions regarding the normal and pathologic physiology of the thyroid may be epitomized as follows:

1. The active substance is iodothyrin (thyroxin).
2. Iodothyrin controls the rate of metabolism.
3. The rate of metabolism increases with increased secretion of iodothyrin.
4. The trend of metabolic rate is the best indicator of the condition of the patient.
5. In endemic goiter prophylactic iodine therapy is effective.
6. In endemic goiter deficiency of iodine is the cause.
7. The amount of iodine deficiency and the duration of it induces histologic changes that account for the varieties of goiter.
8. In exophthalmic goiter the secretion is probably not only increased but also abnormal.

From the standpoint of its bearing on clinical practices the most important data in the realm of pathologic physiology has reference to the rate of metabolism. The measurement of the rate of metabolism by any of the several available matabolimeters furnishes the best means of differential diagnosis in doubtful cases. The rate of metabolism is increased in diseases other than toxic goiter but there is no other disease in which the increased rate is so constant day after day. It is particularly effective in differentiating toxic goiter from tuberculosis and neuro-vascular disease. The metabolic rate is of further value in determining the degree of toxicity as well as the trend of the disease and is therefor an indicator of the time to operate. The operative risk is much greater in the acute exacerbations when the trend of the rate of metabolism, as determined by repeated tests, is upward. It has been stated that the risk is greater with a rate of 40 on the up-grade than when the rate is 60 on a down-grade. The trend of the metabolic rate is of much greater prognostic value than a single reading.

There is a progression and regression in goiter with a definite relationship between the amount of histologic change and the degree of functional disturbance. In this series of progressive and regressive changes the excitant as shown by Marine and Lenhart in a long series of experiments is a deficiency of iodine. The iodine deficiency may be actually due to lack of it in food or water or relative because of unusual demand for it as in adolescence, pregnancy and nerve strain. Occupying a middle-ground in the series is the normal gland with normal production of iodothyrin. Under excitation from iodine deficiency first hypertrophy, then hyperplasia result. If excitation is severe ordinary exophthalmic goiter is produced. Extreme excitation induces atrophy and fibrosis with resulting myxoedema. Long continued mild excitation gives rise to the simple or toxic adenomata. The amount of colloid lessens and the epithelium increases in size when the excitation is more active and the reverse follows reduced excitation. If there is cessation of excitation there is a reversion of the histologic picture toward the normal although evidence of the previously altered gland persists. There is a diminution in size and amount of epithelium and an increase in colloid. This is the involutional goiter represented clinically by the simple non-toxic colloid goiters.

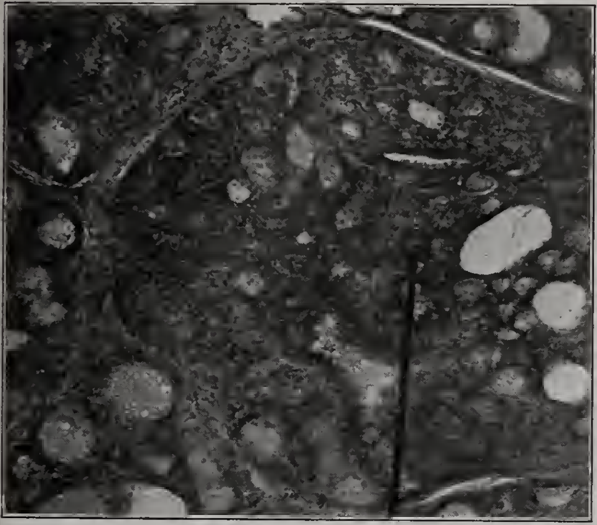


Fig. 3. Greater degree of hyperplasia and colloid reduction.

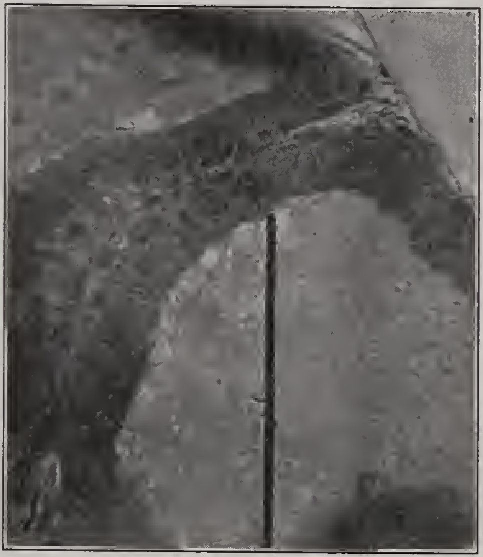


Fig. 4. Showing the columnar cells characteristic of hyperplasia.

Another paradox appears to exist with regard to the relation of iodine and activity of the thyroid. Marine and Lenhardt have shown beyond contraversion that iodine deficiency induces over-activity. Against this are many clinical observations that injudicious administration of iodine has stimulated over-activity. Kimball has

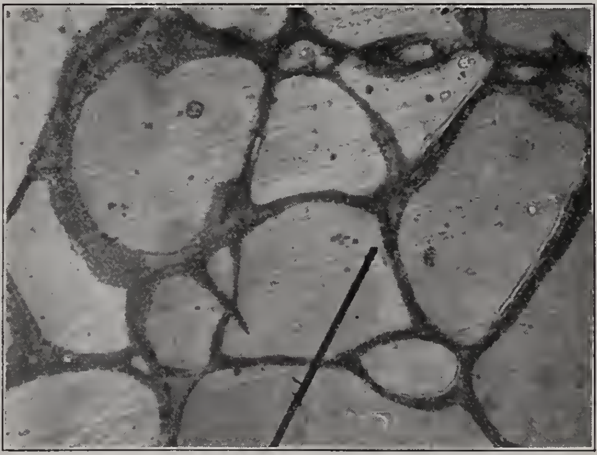


Fig. 5. Typical appearance in involutional goiter with reduction in epithelium and increase in colloid.

reported in a series of about 3,000 hyperactive glands nearly one-fifth were made over-active by iodine medication.

Considering anatomic pathology reference may first be made to older clinical classifications based on gross appearance, only to condemn them. Diffuse goiter, nodular goiter, cystic goiter, parenchymatous goiter have no characteristic well-defined histologic basis. Hemorrhagic cysts, large colloid cysts and calcified areas represent merely accidental complications. The essential pathology existing in the various types of goiter is tabulated in the following pathological classification.

PATHOLOGIC CLASSIFICATION

1. Normal.
    Uniform, uncomplicated, non-tumorous, uniformly lobulated, colloid material throughout, weight—25-40 grams, iodine content 2%.
    Histology:
        Follicles uniform size and shape, full of deep staining colloid, single layer of cuboidal cells.
2. Hypertrophy and Hyperplasia.
    (Usually associated together).
(1) Hypertrophy
    a. General enlargement.
    b. Increased vascularity.
    c. Softer consistence.
    d. Iodin and colloid content diminishes.
    e. Follicles enlarged and irregular.
    f. Epithelial cells increased size.
(2) Hyperplasia
    a. Increase in degree.
    b. Proliferation of epithelium.
    c. New follicles.
    d. Infoldings, plications, papillae.
3. Involution toward recovery (colloid goiter).
    a. Decrease in size.
    b. Firmer.
    c. Reduced vascularity.
    d. Iodin and colloid increase.
    e. Follicles remain large and irregular.
    f. Colloid contains vascuoles and cells.
    g. Epithelium flattened, closely resembles normal thyroid, has same physiologic and biologic possibilities.
4. Exhaustion—Atrophy Fibrosis Prolonged severe excitation.
    a. Exhaustion of thyroid parenchyma.
    b. Atrophy and fibrosis supervene.
    c. Myxedema.

TUMOROUS GOITERS

1. Adenoma (never in normal gland).
    A. Diffuse colloid adenoma.
        1. Originates in adult tissue as result of long standing hypertrophy.
        2. Exact cause undetermined.
        3. Multiple closely packed nodules.
            a. Smaller than fetal adenoma.
            b. Histoligically like normal gland.
            c. No lobulation in nodules.
            d. More frequent next trachea and in lower lateral lobes.
            e. Rarely causes malignancy.
    B. Fetal Adenoma.
        1. Origin in Wolflers rests.
        2. More definitely a tumor, circumscribed, well encapsulated, non lobulated thyroid tissue.
        3. Occurs in any part of gland.
        4. Little or no colloid or iodin.
        5. May resemble normal gland.
2. Adenoma Malignant (doubtfully malignant).
    Precancerous—premalignant lesion arises from fetal adenoma, especially from the less differentiated type.
3. Carcinoma (95% of all malignant tumors of thyroid).
    (90% have origin in fetal adenoma).
4. Sarcoma (5% or less of malignant thyroids).
5. Inflammations.
    1. Acute pyogenic abscess.
    2. Syphillis.
    3. Tuberculosis.
    4. Exanthemata.
    5. Ligneous thyroiditis.
    Resembles malignancy.
    Relieved permanently by operation.
    Non toxic.
    Marked pressure symptoms.
    Very hard fibrous adherent thyroid.
    Specific cause unknown.

Goiters are there-in first divided into tumorous and non-tumerous. The former are subdivided into hypertrophy, hyperplasia, involutional and exhaustion-atrophy. The hypertrophic and hyperplastic goiters show parenchymal over growth by first increase in size of the normal epithelial cells and later new formations of epithelial cells with multiplication of the layers of epithelium and development of infoldings, plications and papillae. Concomitantly there is reduction in colloid, reduced size of acini and increased vascularity. These phenomena are associated with severe excitation and varying degrees of toxoemia. In general the process due to excitation of the gland is one of epithelial hypertrophy and hyperplasia with diminution in amount of colloid. In the order of progressively greater change due to excitation the lesions are hypertrophy, hyperplasia, and exhaustion atrophy — the latter reverses the activity from extreme toxemia to hypo-activity, but the causative factor is the same. There are all conceivable variations in the degree of histologic change as

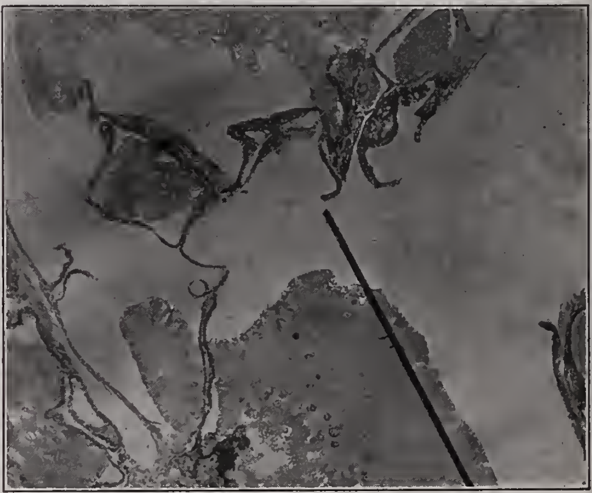


Fig. 6. Extremely flattened epithelium with rupture of acinar walls producing cyst formation in involutional goiter.

well as in the time element. The process may be progressive, stationary or regressive. The histologic pictures characteristic of the various pathologic types of goiter can be predicted from the clinical findings, the history and the physiologic activities of the patient. There are frequently, however, more than one cell characteristic in the same gland in which case the predominating histology will control the clinical picture.

At the Mayo Clinic a classification of goiter is used that has a clinical basis mainly, yet there are histologic characteristics that they associate with the different varieties.

There is a clinical value to their grouping in that prognosis of the probable post-operative result is facilitated.

Plummer of the Mayo Clinic classifies goiter as follows:

1. Hypertrophic parenchymatous:
   This is the type generally found in exophthalmic goiter and histologically shows hyperplasia of epithelial elements and reduced colloid. This group I think is identical with Marines hyperplastic goiters. After preoperative treatment with Lugol's solution M. X., t. i. d., the epithelium in places has a "burnt-out" appearance resembling the stripped trunks following a forest fire.
2. Thyroiditis:
   This is recognized histologically by increased stroma and leucocytic infiltration of the stroma. No germ has been isolated. Whether infectious or not is unknown. This type seems to be identical with the fibrous-atrophic type of Marine and is significant because of the frequent development of myxedema after thyroidectomy. It is perhaps an earlier stage of the fibrous-atrophic type of Marine, but has the same characteristic of epithelial degeneration.
3. Adenoma:
   No sharp line is drawn between the simple adenoma and the fetal. In some cases there has been more differentiation into adult type of gland tissue. The less differentiated types have greater tendency to malignancy. Grossly they are quite definitely demarcated from the rest of the gland by a definite capsule. These are not associated with exophthalmos but develop cardiac lesions.
4. Adenoma with hypertrophy:
   This division manifests a mixed histology due to acquisition of over-activity in an adenomatous type. The exophthalmic type of goiter syndrome is added to the adenomatous variety.
5. Malignant Goiter:
   A. Sarcoma (rare).
   B. Carcinoma (common).
   Very variable in degree of malignancy.
6. Tuberculosis (rare).
7. Abscess. Rare except associated with malignancy.
8. Riedels Ligneous strumitis.

In the accompanying cuts there is shown a picture illustrating the typical facies of exophthalmic goiter and with it photomicrographs of sections from typical hyperplastic goiters. Another series showing the adenomatous goiter with its commonly associated histologic pictures. It is an interesting fact that the adenoma frequently shows a severe toxemia without exophthalmos and often without loss of weight. These cases manifest the obscure types of toxoemia which Crile has called partial hyperthyroidism. They are very confusing in that a cardiac abnormality such as tachycardia or myocardial degeneration results without the exophthalmos, tremor and loss of weight that would be more likely to call attention to the thyroid.

Time does not permit more than brief notations regarding the inflammatory and tumorous goiters in this paper.

The inflammatory types seldom enter into diagnostic consideration since they are generally associated with exanthematous disease or some primary infection. The possibility of a syphilitic or tuberculous gland should be kept in mind. A peculiar hard indurating and firmly adherent gland—the so-called ligneous strumitis has been confused with malignancy because of its hardness and adherence.

Foetal adenomata have a malignant tendency. 95% of thyroid malignancies are carcinomata and about 90% originate in foetal adenomata. Nodular tumors in the right lower lobe are especially prone to become cancerous. Some authorities have denied the existence of sarcoma. If they occur at all they are rare.

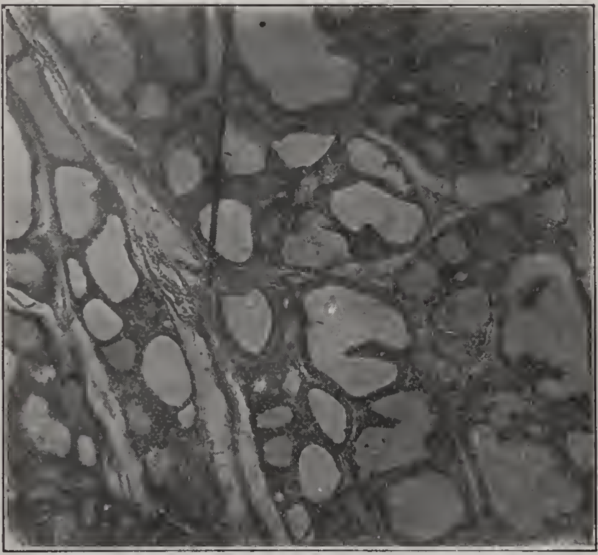
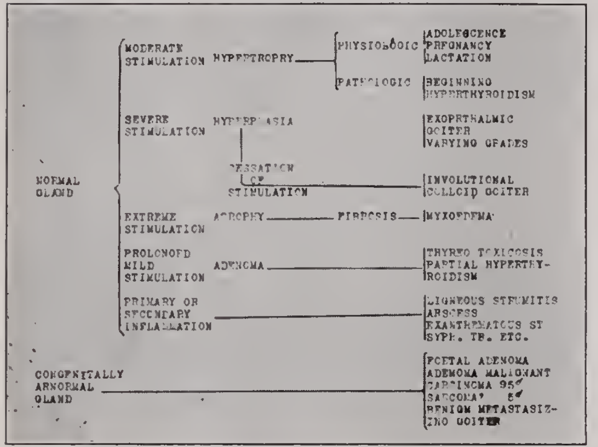


Fig. 7. Atrophic fibrous goiter of myxoedema. Atrophic epithelium and extensive fibrosis.

Thyroid carcinomata metastasize early and particularly in bones. The secondary tumors often show apparently normal thyroid gland tissue as well as malignant cells. The finding of metastasized apparently normal thyroid tissue has led to the reports in literature of a benign metastasizing goiter. In Surg. Gyn. and Obsts. of April, 1926, are several illustrations of thyroid carcinomata occurring in bones.

For purposes of recapitulation another outline of goiter classified according to the histologic type and arranged with reference to the etiology is offered. By observing the pathologic classification and allocating your cases into some one of these groups, the indication for treatment whether medical, surgical or x-ray will find ready solution.



Goiter Diagram.

Hypertrophy if physiologic such as occurs in adolescense, pregnancy and lactation is probably due to unusual demand for iodine by the system. The excitation or stimulation by the relative iodine deficiency is only moderate. Pathologic hypertrophy representing early stages of hyperplasia is due also to moderate excitation but unassociated with physiologic influence. Neither surgical nor x-ray therapy should be seriously considered in this type of goiter. Medical management should control them.

Hyperplasia is due to greater excitation and is represented by the typical exophthalmic goiter that is efficiently managed only by surgical removal.

The involutional or colloid goiter is the result of cessation of excitation. It tends toward recovery and is made under-active by x-ray therapy or surgical removal. The adenomata are due to prolonged moderate stimulation and are productive of thyreo-toxicosis and partial hyperthyroidism. Surgical removal is the only effective measure of relief.

Primary or secondary inflammations are infrequent but should be remembered.

Of goiters arising in congenitally abnormal glands the fetal adenomata play the most significant role. From these the adenoma malignant or doubtful malignant as well as 90% of all malignant tumors arise. Adenomata in the right lower lobe are especially dangerous. Extensive and early metastasis from an undiscoverable primary focus at times occurs. Surgical removal if sufficiently early combined with the x-ray or if late a palliative decompression followed by x-ray therapy may be indicated.

THE MEDICAL MANAGEMENT OF GOITER*

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In going over the mass of literature on goiter in the last two years, one is impressed with the fact that the profession is much alive to the uses and abuses of the iodin treatment. The story of iodin is old. It was used extensively by the early Greeks, who found the ashes of sea weed and sponge useful in decreasing the size of Grecian necks.

Kocher, as we know, used various forms of iodin for many years and finally, in 1910, advised against its indiscriminate use; and reported a number of cases of iodin made goiter. Since that time, until 1922, iodin was practically "banned" by the profession. We owe much to the Mayo group, and especially to Kendall, for his researches and his isolation of the active principle, so-called thyroxin; and to W. A. Plummer, who simplified our classification and pointed out that in exophthalmic goiter iodin is a great aid, in treatment.

SO-CALLED COLLOID GOITER

1. In children during the growing period.

Since the work of Marine and Kimball in Akron in 1920, and the publishing of their articles, departments of health in large cities—chiefly in the Great Lakes region—have taken up the work of goiter prevention. Commercial companies have advertised and advocated the general use of iodized salt, and as a result many surgeons are again reporting cases similar to Kocher's Jod-Basedow.

We are, without question, safer if we stick to Marine and Kimball's dictum of 2 grams over a period of 2 weeks, twice yearly—rather than advise the indiscriminate use of iodized salt. I had the pleasure of hearing Kimball before the American College of Physicians in Detroit, in February of this year, and he states that he has never seen toxic symptoms from the small doses advocated, in 450,000 school children. He believes that he has prevented goiter in 99% of his cases, and decreased the size in 80% of those who had thyroid enlargement.

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*Read before annual meeting Nebraska State Medical Association, Omaha, May 11-13, 1926.

COLLOID GOITER IN ADULTS

It is here that the general use of iodin does harm. Before using iodin on an adult gland a careful examination should be made, including a metabolism test, and then iodin should be used very carefully with instructions to the patient to report every two weeks, and to discontinue the medicine if he cannot report. The use of compound tincture of iodin, minims five once daily every other week for three months, usually produces a marked decrease in the size of the gland and a feeling of increased energy in those patients who have a minus metabolism reading.

We should remember that all classifications are not always clear cut and distinct; and frequently a seemingly simple, smooth symetric, non-vascular gland contains a hidden adenoma which may bloom into a typical toxic adenoma by iodin therapy. Therefore, great caution and careful observation is urged in colloid goiter of adults.

ADENOMA

Plummer very accurately describes the adenoma. The non-fetal adenoma is usually first demonstrable in the late 20s and runs on the average of 14 years before it becomes toxic. It is usually irregular in contour, has no bruit, may be unilateral or bilateral, is nodular and encapsulated, and produces no symptoms other than pressure, for a number of years. It may grow rapidly, become cystic, may calcify or degenerative changes occur, and even cancer develop before symptoms of toxemia.

Plummer finds that 10% of fetal adenomas become malignant. Ultimately these types develop an increase in the output of normal thyroxin, and at about the age of 40 become toxic. Iodin is, of course, contraindicated here, and it seems to me that urgent advice for surgical removal of the adenomata before they become toxic, saves many lives.

I recently had a case of this type, who had been advised ten years ago and five years ago to have the goiter removed. She persistently refused, and, when I saw her she had a decompensated heart, a fibrillating auricle—followed by pulmonary infarction, pneumonia, empyema and death. Here was a needless loss of life.

I believe any medical man after going over a case should very carefully measure the indications and contraindications for surgery, and should not temporize unnecessarily.

Jackson believes that the number of cases of iodin hyperthyroidism has greatly increased, due to popular demand for iodin in the treatment of goiter. Kimball reports 309 cases in which symptoms have been precipitated by iodin; but these cases were of long standing and distinctly adenomatous. Lahey also cites the danger of changing a non toxic, adenomata into the toxic type by iodin.

EXOPHTHALMIC GOITER

It is here that we should have team work. As we all know, Plummer teaches us that in the true exophthalmic goiter there is some unknown chemical toxin which produces an output of abnormal thyroxin; and that the use of iodin affects the hyperplastic gland in such a way that a lessened metabolism ensues, with an immediate temporary improvement, in a large percentage of cases.

Kendall believes that the real cause of exophthalmic goiter is not known. It is a derangement of internal respiration. It is a perversion of internal secretions. Marine has frozen the adrenals and produced a typical clinical picture in rabbits. The nervous system breaks down and affects the adrenals through the thyroid. What we see externally are evidences of acute nervousness, and are not necessarily exophthalmic goiter. Kimball believes the real cause is outside the gland; and he believes that infection plays a great role. I have recently seen a case of true exophthalmic goiter develop rapidly, following a streptococcus sore throat. Martin Fischer cites three cases following an ulcerative sore throat. Kimball tells of a mother and two daughters all developing severe symptoms, with tachycardia, tremor and increased metabolism after having infectious sore throat at the same time.

All foci of infection should be eradicated, either before or after the operation—depending upon the severity of the symptoms and the response to iodin. If under medical management the metabolism drops 20 to 25 points these foci can safely be removed before the goiter is touched.

Although it is doubtless true that some cases of exophthalmic goiter, perhaps 10% to 20% of them, recover without surgery over a period of three or four years of intermittent invalidism, I believe that the danger of permanently damaged hearts is too great to temporize. I also believe that the duty of the medical man is to prepare his case for surgery along the lines suggested by Plummer. This at least should be the procedure until we find something more satisfactory.

THE VALUE OF REST

The value of rest is undoubted. It definitely decreases the metabolism, quiets the heart and improves the general nervous state. There may be a question as to what we mean by rest. If the heart tones are of good quality, a little exercise perhaps aids in the elimination of toxins. There is probably greater need of mental rest than physical rest. Too little attention is paid to the patient's psychic. Fear of surgery may make it necessary to educate the patient for some little time, several weeks perhaps, finally bringing her around to the idea of wanting surgery because it offers the best chance of permanent cure. There is no condition where confidence in the medical adviser is more necessary.

DIET

The metabolism is increased. All the tissues are calling for a greater food supply. If our patient can tolerate it, a diet high in calories and rich in protein should be given. If she can handle 4000 calories she should have it.

A patient with moderate toxemia should have at least one week of rest—for the most part in bed—before operation. She should be given at least 10 minims of compound tincture of iodin three times daily and at Rochester they have recently doubled this amount. I now have a patient whose metabolic reading has dropped 37 points after two weeks of Lugol's. The surgeon always prefers to operate on a lowering metabolism. This method of treatment has made the dreaded crises a rare event. Preliminary ligation is now rarely necessary.

In these crises the amount of iodin should be doubled. The treatment of the thyroid storm should also include treatment of the dehydration. Fluids in large quantities, by mouth, by bowel, under the skin and into the veins, as well as 10% glucose should be given. Carbohydrates should be otherwise pushed and the blood sugar taken, with insulin if necessary, to aid in utilizing them.

Iodin should also be used following the operation though the larger doses are not necessary. Opinions vary as to how long the drug should be used postoperatively, but under close observation it may be used intermittently for a year, according to Lahey.

THE GOITER HEART

As long as the heart is regular, though rapid, there is little indication for digitalis unless there are evidences of heart failure. This applies equally to the heart of true exophthalmic goiter as well as toxic adenoma.

Auricular fibrillation means use digitalis in sufficient amount—that is 1 cc of the tincture per every 10 pounds of body weight. This amount may be given over a period of three to four days in the average case; and in one-half that time in the more severe cases. Again if there is no evidence of digitalization, and no evidence of toxic effects of digitalis, the drug may be continued longer, until double the amount is used. If not well borne by the stomach it has been shown that it will be well absorbed by rectum.

Nellis Foster says it is not the failing heart but vascular failure similar to shock, which most often kills; and that auricular fibrillation per se does not contraindicate necessary surgery.

Treatment by injections of either boiling water or alcohol has its advocates. The treatment of malignant goiter is of course purely surgical, and does not come under the scope of this paper.

CONCLUSIONS

1. Adolescent colloid goiter is prevented, or greatly aided, by the use of iodin—but treatment of a community en masse is dangerous.

2. Colloid goiters in adults are likewise greatly helped by iodin; but patients with such goiters under treatment should be carefully supervised by the private physician. Iodin made goiter is becoming enormously common; and a timely warning should be given to the takers of iodized salt.

3. Benign adenoma is harmed by iodin. Such goiters should be removed before they become toxic. Surgery is the only treatment (except possibly x-ray) for toxic adenoma.

4. Exophthalmic goiter is a medical, surgical problem; and proper management should be, first medical, then surgical and again medical.

5. Digitalis is indicated only in auricular fibrillation or evidence of cardiac failure. Auricular fibrillation without heart failure, does not contraindicate surgery.

6. Infection may play a role in goiter, and eradication of all known foci is good medicine.

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X-RAY TREATMENT OF GOITER*

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The treatment of goiter involves so many aspects of pathology, physiology, metabolism and therapeutics, that a division of the subject, as in this symposium, gives a feeling of relief and should make unnecessary much that might be otherwise repetition. Three broad methods of treatment, medical, radiological and surgical, under proper conditions, may justly claim to influence the course of the disease. Our interest should always be the relief to the patient and not in any particular form of treatment. One, two or three forms of treatment may be followed in the same case.

No research in modern medicine has caused so wide spread interest as the advancement of our knowledge in the study of goiter. No discussion on the treatment of goiter should fail to pay tribute to the names of the pioneers whose names stand like milestones in the historical review of the subject. Parry recognized exophthalmic goiter in 1786. Graves in England, in 1835, and Basedow in Germany in 1843, added more to the knowledge. Moebius in 1886 brought forth the first modern conception of the disease, that a morbid function of the thyroid causes an intoxication. He called it hyperthyroidization, which is the syndrome today spoken of as hyperthyroidism, thyrotoxicosis, or toxic goiter. Kendall, in 1914, made the greatest contribution by separating a pure chemical which he called thyroxin. Subsequently he proved that this is the active principle of the thyroid gland, and demonstrated the chemical nature of the compound. Plummer, by his sagacious reasoning, has correlated these recent findings and has developed a new philosophy of the disease, which is in the main acceptable. With the added interest in metabolism rates in certain thyroid states, the work of Boothby and Sandiford at Rochester, Dubois at Cornell, Harris and Benedict at the Carnegie Institute, Deyer in Oxford, England, and others, have made the theory to have practical value. The researches in this country of Halstead, Cunningham, Carlson, Marine and Cannon are worthy of our greatest commendation.

These facts may repeat what others have said before me. But it is necessary to cover this much of a large thesis in order to lay the foundation for a rational conception of roentgen therapy. Furthermore, it is known that the pathological types are fairly constant and reduce themselves to similar types of all other tissue changes but degrees or modifications. The primary types are — colloidal, adenomatous, and exophthalmic. In the colloid type there is an increase in the intra-alveolar colloid. Adenomas are usually local but are often diffuse and are thought by some to be embryonic resting cells and hence liable to preverted cell activity. Diffuse parenchymatous hypertrophy and hyperplasia symmetrically involving the gland, is characteristic of the so-called exophthalmic goiter. The histological study shows hypertrophy of the alveolar epithelium, increase in intra-alveolar colloid, and development of new alveoli. Hyalinization, cystic degeneration, fibrous formation, calcification and malignancy may arise, but these are incidental to the primary pathological changes that arise in any gland undergoing degeneration.

Similarly the physiological changes are fundamental to the rationale of roentgen treatment.

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*Read before Nebraska State Medical Association, Omaha, May 11-13, 1926.

Hyperthyroidism, hypothyroidism, and exophthalmic goiter arise. X-ray therapy combats the hyperthyroid and exophthalmic state and seldom if ever produces hypothyroidism. We are compelled for the present to fall back upon the theory advanced by Plummer that the explanation of hyperthyroidism in exophthalmic goiter lies in the production not of pure thyroxin, but of an incomplete molecule slightly different in chemical composition.

The normal action of the thyroid influences growth of the skeleton, the activity of all tissue, including the central nervous system, secondary sex characteristics and maturity of life. It controls metabolism. Its inter-relations with other glands are problems yet for study.

The disturbances in physiological processes and resulting syndromes of the disease may be understood in terms of thyroxin. The story of thyroid intoxication is locked up in the mystery of composition, elaboration, storage, liberation and action in the body tissue of the chemical compound thyroxin. This important compound is manufactured in the thyroid gland and may be found in the body tissues in very minute quantities. The thyroid has no other known function than to produce thyroxin. X-ray treatment, as in surgical treatment, aims to cut down the thyroxin output from the gland and protect the body from its deleterious effect until the gland reduces its output to normal.

The basal rate is known to be altered by hyperthyroidism. Almost all other diseases have but little or but transcient effect upon it, and so in diagnosis they are easily eliminated. Not only in diagnosis is the metabolimeter regularly used, but also in visualizing and in determining the cause of the disease. Rates are spoken of for practical purposes as normal, running from plus ten to minus ten; increased, over plus ten; decreased, under minus ten. Minus 40 is a very low rate and plus 175 is very high. Either extreme may indicate impending death. We have found the basal rate variation in health very slight. It is more constant than the pulse or temperature. The slight changes in the chemistry of the blood react as grave clinical changes. The changes in the iodin content of the thyroid are comparable in delicacy.

The metabolism test may be called the quantitative estimation of the thyroid function. It is our gauge for treatment. It clinches the diagnosis, it visualizes the progress the patient is making. For one treating a large number of cases, the use of the metabolimeter is a necessity. Like the microscope and electrocardiograph, it is necessary for one doing refined work. Even long experience in clinical signs of hyperthyroidism does not develop accuracy in estimation of the metabolic rate. Experience gives qualitative skill, but not quantitative accuracy.

The selection of a mode of treatment should not be a matter of controversy. Every patient with a marked toxicity of the thyroid gland should first have the benefit of rest in the best controlled surroundings. The psychic stress, which is frequently present, must be relieved. The object of further treatment is threefold — to reduce the output of the gland, to permanently lessen the function, and to conserve the other organs of the body. It is essential at the start to eradicate all focal infections. Questionable teeth, tonsils, sinuses or any other focus of chronic infection should not be permitted to remain. The theory of thyroid activation by focal infection has much proof to sustain it. Quiet, comfortable surroundings, exercise graded according to the severity of the case, a vegetable and milk diet and complete control of the patient are the basic principles of treatment.

As far as we know no drugs have the least influence on the metabolic rate. Aconite and the quinine derivatives have no ground for support in the modern concept of the disease. The only reason they are used today is because their names still appear in older text books left over from the days of empirical medicine. Digitalis has a place in the treatment only when the heart muscle is stretched and decompensation has occurred.

Since none of these remedies have the least effect on metabolism, after the initial drop in the curve of hyperthyroidism has been effected by rest, no drug therapy is usual in conjunction with x-ray therapy except for the symptomatic treatment that might be necessary.

Iodine is seldom of value for it masks the effects of the roentgen therapy. Its maximum effects are reached in eleven days and by the fourth week the toxicity returns to its former level and it may after that make the conditions even very much worse. Iodine is a safe remedy as a prophylactic measure when administered to persons without goiter to prevent its development, but is even dangerous if given to adults who have adenomatous tissue in their thyroid glands. Iodine therapy should never be adopted during roentgen treatments except to tide over a severe crisis before the effects of the roentgen ray have had time to benefit the patient.

While mild cases may be cured by so-called rest treatment, yet such measures in severe cases only serve to bring the metabolism curve to a certain point. More aggressive measures must be adopted if further reduction is to be expected.

In order to accomplish this there are two methods of choice. One is surgery and one is roentgen therapy. For some cases, especially those hard to control, or those at a distance from a competent roentgenologist, surgery had better be instituted at once. Treatment is often instituted one way or the other because it is an economic question. The surgical treatment is shorter and returns the individual to duty sooner. But so often a patient will not accept it and many times it is contraindicated. But in the great majority of cases the roentgen therapy is just as sure of the final results, there is no mortality and recurrence is no more liable.

The effects of the roentgen ray are on the thyroid gland. There is first an inhibition, then a cloudy swelling, then slow degeneration of the parenchymatous tissue, which in time, if sufficiently radiated, is replaced by fibrous tissue. Since the gland is ductless there is no way to determine visually the reduction of the gland secretion. But since the clinical signs and the metabolic rate all lessen, we are justified in assuming a lessened output. Experience shows that this is usually permanent. A certain small per cent require a second series and a very few even a brief third series. Usually in three to four months the curve has fallen definitely to a low level.

In the hands of an expert the dangers of roentgen treatments are exceedingly few. Telangiectasis and atrophy of the skin never occur if the dose is kept below the erythema dose. The earlier a toxic goiter is treated the more prompt is the relief. Younger patients as a rule do better. A timely course of treatments may serve to prevent an established career of hyperthyroidism. Old cases of toxic goiter require longer rest and show more permanent signs of injury.

The first signs of improvement come in about three weeks, when the patient will report that there is a return of the feeling of general well being. There is a gradual fall in pulse rate, a gain in weight, the pulse slows up, restlessness and insomnia diminish and the basal rate is lower. In about 50 per cent of the cases the exophthalmos eventually disappears. The thyroid enlargement is the last objective sign to go. Young individuals show wonderful recuperative power. Even hearts damaged to the point of decompensation or fibrillization may recover entirely.

The roentgenologist must have the full cooperation of the patient. He cannot succeed acting as a technician. There is yet much in the art of practice and its application to thyroid activity. Dr. Crile, with his great experience, says that the psychological control of the patient is paramount in all therapy, that the courageous patient gets well and the weaker one who enjoys the tyranny of a fond husband or the coddling of her family, does not recover for a longer time. The treatment by roentgen therapy is major therapeutics. Its application to thyroid intoxication requires a broad knowledge of internal medicine.

The indications for roentgen therapy in toxic goiter are simple, i. e., any proven toxicity beyond a limit prejudicial to health. Toxic adenomas are so easily and safely removable that the surgeon should have them if he can get them. Yet the roentgen treatment of adenomas often produces early and brilliant results. Contraindications are largely confined to the non-toxic group. Intrathoracic goiter, or those causing pressure had better be removed surgically. Cancerous goiters are, of course, surgical, but if inoperable, or after partial deletion, roentgen therapy should be employed.

My own treatment consists of a careful study of the case or an abstract of a diagnostic study by a competent colleague. After a grasp of the so-called psychic control, which may take one or more consultations, a plan is laid out for the patient covering an estimated time on the average of three months. The diet is arranged, a program of complete rest or relief of 25 per cent, or 50 per cent, or 100 per cent of the load is agreed upon. Relief of responsibility and all irritating or deterrent environmental factors are insisted on. The actual treatments are given once a week when the weight and pulse are recorded, the confessions of the patient received, and the course of the ship set for another week's voyage. The x-ray given is a medium wave length produced by about 80 K. V., 5 M. A., 5 mm. al. filters, dist. 35 cm., time 10 mins. Each month the basal rate is taken and a general charting of the course again laid out. It is gratifying indeed, after the patient's confidence is restored, to see the restlessness lessening, the weight increasing, the pulse slowing and general good health returning. Very few patients carefully treated will have later to seek some other form of treatment. I know of few ailments in which treatment gives more satisfaction, when the chronicity of the case and the usual clinical phenomena are comparable.

I cannot close my part of this discussion without paying my tribute to the surgeons who have done so much for goiter stricken patients. For forty years the cure of toxic goiter has been a surgical procedure. European surgeons in the last century developed the best in goiter surgery. In this century American surgeons as Halsted, Mayo. Crile and others, have carried the technique to further perfection and reduced the mortality to a very low rate. They have held the field alone. Any new method naturally excited hostility for it introduced a competitor into a field in which they had hitherto held supreme control. For ten years roentgen therapy has steadily gained in popularity until it bids fair to rival in effectiveness the better advertised methods of surgery.

Surgeons are inclined to exaggerate their cures. Their statistics are built on carefully selected cases. Crile and Mayo may boast of less than one per cent operative mortality. A long compilation of cases by a well known European surgeon gives 15 per cent mortality on the Continent. Crotti gives the same for the United States. If hospital statistics are chosen as a basis for study, the average surgeon under the average conditions will have a higher mortality.

It has been my good fortune in the past two years to listen to and participate in several exceedingly interesting symposiums. At a recent meeting of the American Association for the study of goiter, Drs. Crotti, DeCourcy and Wayne Babcock participated, but they knew and were interested only in surgery. Two last meetings of the Radiological Society of North America both included in the program symposiums on goiter. Drs. Crile, Lahey, Richardson and other noted surgeons participated. The Massachusetts General Hospital Commission, of internists, roentgenologists and surgeons took part. It seems to me that the situation may be summed up about this way.

Surgery and irradiation are the two best methods of treatment. With the basal rate as an index, results are as favorable in the end for x-ray as for surgery. Surgery is largely for certain types of goiter—colloid, unsightly deformities, intra-thoracic goiters. Surgery has a mortality that is high. X-ray has none. Surgery is shorter and where the patient cannot be properly controlled or cannot be placed under satisfactory conditions it is still good treatment.

It is only fair to say that the judicious use of Lugol solution used for a short time in preparation and the subtotal thyroidectomy type of operation have made goiter surgery much safer. But there are so many cases in which operation is refused, where the rising curve of toxicity renders it unsafe, where the physical condition of the patient from other causes contraindicate the choice of surgery. In all of these cases and in all other forms of toxicity, x-ray offers a rational and satisfactory form of therapy.

CONCLUSIONS

1. Clinical observation and the records of basal metabolism rates indicate that properly selected cases are as rationally treated by roentgen ray as by surgery.

2. The general management of patients is as important in roentgen treatment as in the medical or surgical modes of therapy.

3. Adenomas with toxicity yield more readily to surgery but often give brilliant results under roentgen treatment.

4. Exophthalmic goiter shows the best results of all types.

5. There is no mortality, no fear of operation, and no defacing scar on the neck.

6. The treatment of toxic goiter is major roentgen therapy and demands conscientious and trained services.

7. The frequent check of the metabolimeter is an aid to diagnosis and treatment.

8. Roentgen therapy appeals as a rational treatment because in the end its results are as permanent as surgery. It often economizes the time and allows the patient to continue his occupation as a bread winner.

9. A patient who demands quick results, who lives at a distance, who cannot be made to cooperate, had better be operated at once if the toxic curve is downward and the physical condition does not contraindicate.

DISCUSSING SYMPOSIUM ON THYROID DISEASE

A. F. TYLER, M. D., (Omaha): It would seem from the discussion of this subject there is no method of treatment that is 100 per cent perfect. Radiologists have seen many of the surgical and many of the medical failures. The surgeons see the failures of the roentgenologist and the medical man. The medical man sees the failures of the radiologist and the surgeon.

We do know, however, where cases are properly examined, the proper clinical history is made, the proper laboratory tests, including basal metabolic estimation, before treatment, and during and after treatment, that proper radiation therapy of the thyroid reduces the metabolic rate in the majority of cases where the patients are properly selected, with a restoration of the patient to normal well-being, as far as we can tell by laboratory tests, physical examination, and general estimation of the patient's condition.

There are certain types of cases, as pointed out by Dr. Rowe, which are treated to good advantage with radiation therapy. In his experience, he says the exophthalmic type has yielded the best results from radiation therapy. All of us, I think, will agree that this is the most severe type of goiter we have to deal with. On the other hand, where we have toxic adenoma, we usually have a less degree of toxicity than in the exophthalmic type; and consequently if we do use radiation therapy on toxic adenomas, we usually get a quicker response — that is, the patient is more quickly restored to normal metabolic rate and good health than is true in the exophthalmic type, because of the difference in the toxicity.

Some years ago we had the privilege of treating a patient referred to us by Dr. Simanek. This patient was so extremely toxic she could not be operated upon at that time. She was very much improved by x-ray therapy, but the gland did not entirely disappear. She still had an enlargement. Later she wished this removed for cosmetic reasons. This was done by Dr. Simanek and we had the opportunity, therefore, of examining this gland under the microscope after radiation therapy had been used. The microscopical examination proved beyond the shadow of a doubt that the gland tissue had been largely replaced by fibrous tissue. That is the effect described by Dr. Rowe of radiation upon the thyroid gland. It reduces the amount of functioning tissue in the gland, but does leave a considerable amount of scar or fibrous tissue.

I think Dr. Rowe did not say anything about the use of radium in these cases. It is of advantage in patients who are so sick the excitement of x-ray is too much for them.

F. W. HEAGEY, M. D., (Omaha): The medical side of disease of the thyroid gland has been so admirably presented, and so far so little has been said in regard to complimenting the speakers, I feel I have a certain duty as far as the essayists are concerned. I think the simplicity and clearness they have shown in presenting the matter have impressed you all as it has me.

We are sorry a more definite paper on the surgical side has not been presented. It has been my experience to have cases from most of the men who have taken part in the discussion. I find the greatest difficulty is that surgery has been advised and the patient has refused it. Sometimes in some of these cases, x-ray or radium treatment has been advised and refused. As Dr. Bliss said, it makes our responsibility extremely great. To advise surgery at once means to lose the confidence of the patient, and I have felt it was my duty to gain the confidence of the patient to such an extent the proper measures would be carried out; but while we are doing this, something must be done for the patient.

To my surprise, in the last five years I have found certain medical treatments do work in some of these, not in all, in a way many of us did not expect. We have been told iodine and Lugol's should be given over a short time only; yet when you are forced to handle them, it is remarkable some of the results you have gotten. How permanent they will be I cannot say; but large gain in weight and reduction in metabolic rate lasting over two years are seen.

My experiences are not alone in this. We are entering a new field so far as the treatment of thyroids is concerned — what is called the medical treatment of thyroids. Far be it from me to say anything detrimental as far as surgery, x-ray, or radium is concerned; because each has its place.

There is another thing to emphasize, and that is to remove the foci of infection, because they play a large part.

Another thing is the psychology of the treatment of the patient himself. The first thing to try to do, if we are unable to hospitalize them or have them take surgery, is to see how we can slow them down.

JAMES F. McDONALD, M. D., (Omaha): I want to endorse heartily what Dr. Heagey has said in the way of appreciation of the manner in which the subject of disease of thyroid has been covered this afternoon. The simplicity, clarity and comprehensiveness of these papers have made them interesting and stimulating.

I want to note one symptom which occurs in hypothyroidism, as in myxedema, that is often overlooked. Since mild grades of hypothyroidism is often missed by the clinician, as Dr. H. S. Plummer used to emphasize to us at the Mayo Clinic, all of the symptoms which call attention to this syndrome are important. In addition to the symptoms of this condition usually described in the text books, such as reduced metabolism, thickening and drying of the skin, edema, drying and loss of hair, as in the eyebrows, the slowing up of the patient physiologically and psychologically, etc., they noted at the clinic another symptom due to a change in reflexes, especially the ankle jerk, from altered states of the neuromuscular apparatus.

Usually a tap on the tendo achilles, when the patient is in the proper position, causes a reflex known as the ankle jerk. As is well known, this movement consists in a quick planter flexion at the ankle joint, and a quick return of the foot to the normal position.

In hypothyroidism this reflex is frequently altered. When the tendo achilles is tapped, the planter flexion occurs quickly about as normal, but the return movement of the foot back to the normal position is much delayed. This delay is due to a sutsained contraction or delayed relaxation of the muscle involved in the reflex. This symptom has diagnostic value, and should not be so often omitted in our text books.

Another point I wish to raise is the complexity of the control of the metabolic processes, so far as they are at present understood. It is the fashion to look upon the regulation of metabolism as almost exclusively mediated through the thyroid hormone. I wish to recall the well known fact that there are many other regulatory factors in addition to this hormone.

There are many other hormones at work in the body which effect the dynamics of the cell in the processes of growth, energy transformation, including heat production, and the performance of various special functions. The hormones of the pancreas, the parathyroids, the suprarenals, the pituitary, the sex glands and other organs of the endocrine system, have a profound effect upon the ectivity of the body cells.

In the last few years various vitamines which I have not time to here enumerate have been isolated from the foods and shown to be necessary for normal cell function.

We are also learning that the ionic balance in the fluids which bathe the body cells are highly important for their dynamic regulation. The effect of the calcium ion in stimulating and finally stopping the heart beat is well known. This ion seems to act upon various viscera, in a manner similar to that resulting from stimulation of the sympathetic system. This action of calcium is easily demonstrated in the laboratory upon the beating heart of the frog. Potassium has the opposite effect upon the cells of the tissues composing the viscera. The effect of various ions upon the activity of the body cells is beginning to be seen as a large and important subject which requires much further investigation.

Other controlling factors which are important in the regulation of the activities of the body cell are endocellular enzymes. Many of these are present in the cells of our bodies. Among these are enzymes named oxydases and peroxydases which are known to be operative in the process of oxydation, which basically underlies the metabolic processes. Still another factor profoundly effecting heat production is food, as in the specific dynamic action of protein. There are many factors at work in the regulation of metabolism, and the basic mechanism by which each of them acts is still far from being clearly understood.

We may further say, I believe, that the interrelation of these various factors and of other probable factors as yet undiscovered in the regulation of the dynamic processes of the bodily cells are as yet a long way from being clearly comprehended.

A knowledge of the activity of the thyroid hormone, due to the great work of Kendall, is a long step forward in our knowledge of metabolism, yet many sciences must be more fully mastered before we get to the bottom of the entire mechanism of the control of metabolism.

B. B. DAVIS, M. D., (Omaha): I think we have all been intensely interested this afternoon.

I simply wanted to say a word about Dr. Mayhew's paper, because he brought out some points I think are exceedingly valuable. I want to express my feeling in regard to the estimate we put on basal metabolic rate. In the first place, I do not think the first reading should be considered. Almost invariably, the first time the patient goes through this test she is nervous and a little frightened, and the result is the reading is much higher than it should be.

In the second place, I do not think we are ever justified in considering of any value a test taken in the office. Those people have not had the rest that is needed, and usually wo do not get a fasting patient; and I think she should fast and rest before the test. Early in the morning I believe is the best time to make this test, after the patient has passed a fairly comfortable night. Once in a while the patient will be restless and not sleep. The next morning is not a good time to get this metabolic test. I believe the one who conducts the taking of the metabolic rate should be acquainted with the patient and be on friendly terms with the patient. The patient should not go to the presence of a stranger and have this metabolic test made. I think all of those things cut a figure.

I want to say another thing in regard to the metabolic rate so far as operating is concerned. I would rather operate on a patient with exophthalmic goiter with a metabolic rate of plus 75, if it is falling, than plus 40 if it is rising. I think it is important to choose the right time for operating. Many of the patients are over-prepared. Many times you get a patient in a hospital and get her prepared for the operation; take her metabolic rate and see it is falling; get her over her nervousness, and we think the time is ripe. I have had a number of experiences where the patients improve up to a certain point and begin to get worse again. I think to select the psychological time for the operation is very important.

Just a word about digitalis. I think it is oftentimes abused in the preparation not only of thyroid cases, but of others. If you keep it up too long, you will meet with the misfortune Dr. Roeder mentioned. I believe two or three days is as long as we should continue the use of digitalis in the average case we run across.

M. G. WOHL, M. D., (Omaha): I would like to touch upon a few points that were brought out by Dr. Mayhew, particularly the evaluation of the basal metabolic reading. I have been studying basal metabolism for the past six years; indeed, some four years ago I had the temerity to present before this society my early observations on the value of the basal metabolic rate. I was inclined at the time to hold to Dr. Mayhew's viewpoint as expressed to us this afternoon. After making around seven hundred basal metabolic readings, and having had an opportunity to check clinically a large percentage of these readings, I have gained certain impressions that I would like to hold.

It is essential for us to realize that the basal metabolic determination is primarily a measurement of heat production inherent in living matter. The thyroid, controlling the latter, is, therefore, foremost to be considered in an abnormally high or low basal reading. One may obtain a high metabolic reading, as for instance in fevers, early tuberculosis, etc., yet considering the clinical picture of the patient, the high reading can be easily explained, and hyperthyroidism ruled out. One may likewise get a high reading in essential hypertension and pernicious anemia, yet consistently high readings we find in our experience in hyper- or dysfunction of the thyroid gland.

The basal metabolic reading is of particular value in a group of cases that are characterized by constant fatigue, and hypersensitiveness to cold weather, dry skin, drowsiness, and lack of interest, and usually slow pulse. Although these cases do not present a typical picture of myxedema, yet one will find the basal reading to be persistently low (hypothyroidism). This group of cases will respond to thyroid therapy. Without the basal determination it may be difficult to arrive at a diagnosis in such cases.

The crucial point in the whole question, in my opinion, is the method itself. One must use particular pains to prevent errors, both on account of the apparatus itself, such as a leak in it, or on account of the patient, who may have partaken of a meal before arriving at the office, or be extremely nervous in the expectation of the test, and thus the reading be very high. If proper technical care is not taken, I fear that one of the most valuable tests will fall into disrepute because of varying results.

ALFRED BROWN, M. D., (Omaha): I also feel the surgeon should be represented in this symposium, although I think the internist in the person of Dr. Bliss has pleaded our cause very well.

There are a couple of points I should like to speak about in the prognosis of operations in toxic adenoma. They are of two types: First, the localized or fetal; and second, the generalized type. These toxic adenomatous goiters give rise to two different types of heart symptoms, which are apparently due to two separate methods of affecting the heart. One method is the one recognized for a good many years — through the sympathetic ganglia. You will remember Jonnesco excised the inferior cervical ganglion and got relief of the eye signs and cardiac symptoms in toxic adenoma and exophthalmic goiter. This affection of the heart through the sympathetic results in auricular fibrillation. Personally, I am not very much afraid of the heart in fibrillation before operation. In my experience, upon removal of the adenoma the fibrillation stops. Even where the irregularity could not be controlled before operation, the removal of the adenoma restores the heart.

The type which is dangerous is the myocardial change in which the boom quality of the first sound of the heart has gone, and a tic-tac heart results in which the two sounds of the heart have the same quality. These do not do well and are extremely dangerous to operate upon. If there is a possibility of getting the booming muscle sound of the heart back before operation they will do very much better.

There is a type of adenoma of which Dr. Lahey has written lately in which the cardiac symptoms predominate, and yet there is not any goiter visible. Dr. Lahey has just brought out within the past month or two a method of examining the thyroid which has been very valuable — the pushing of the thyroid cartilage to one side, and getting the gland between the fingers, by which small adenomas can be recognized, and the removal of these adenomata will bring about an amelioration in the cardiac condition.

I feel that the treatment of true exophthalmic goiter in which there is hyperplasia of the cells of the thyroid is not so amenable to surgical treatment as we formerly thought.

In regard to aids to surgery in the surgical treatment, I think the most important is waterlogging these patients preoperatively; and immediately after they come off the operating table, fill them up with all the water possible. Rather than digitalis, I use the caffein-sodium benzoate intravenously for from twenty-four to forty-eight hours, just as much as they will stand; and push water.

CLYDE ROEDER, M. D., (Omaha): I have two exophthalmic goiters in the hospital now; they are very large and very toxic; they both have had multiple ligations, an abundance of iodine and multiple injections into the gland of phenol, and concentrated solutions of quinine, boiling water and alcohol. In addition they have had an abundance of x-ray treatment. Both are gradually getting worse, and I am afraid that they are going to die. A remission may occur but unless it does there is no help for these patients. Both patients came late for treatment.

There is no question but that we see different types of exophthalmic goiter. While recently talking to Dr. H. S. Plummer of Rochester, Minnesota, he stated that their records show that exophthalmic goiters from the Mississippi valley are the most toxic of all and the most dangerous to treat. These two patients of mine are from the Missouri valley—one from Nebraska and one from Iowa. We see as high a percentage of the most toxic exophthalmic goiters from this territory as are seen anywhere. Possibly, the origin of these cases is due to lack of iodine, or some demand on the thyroid which determined the type of disease we have.

Dr. Rowe has been treating goiters with the Roentgen ray for years and has been before us in the past in goiter symposiums. I've enjoyed discussing this problem with him and I do not doubt the veracity of his statements. Surgeons see so many goiters treated unsuccessfully by the x-ray and medications, that they are naturally doubtful about non-surgical treatment.

Surgical mortality rates with all types of surgical operations depend upon: (1) the surgeon; (2) the disease and its degree of virulence; (3) the resistance of the patient; and (4) the environment of the surgical procedure, hospital assistants, nurses, etc. There never was, nor will there ever be, a standardized mortality rate. An untrained goiter surgeon, no matter where he operates, will have a high mortality rate. The very best of goiter surgeons seldom lose more than one or two in a hundred operations. That is a commendable rate.

W. L. ROSS, SR., M. D., (Omaha): I have enjoyed this symposium immensely. It compares favorably with the symposium at Cleveland in December before the Roentgenological Society of North America.

Almost every meeting now is very much interested in the three methods of treatment of exophthalmic goiter. All are surely in place. They give wonderful results, and the patient can hardly go amiss by applying any of them.

I want to speak in favor of x-ray, and also state that at the present time we have x-ray men, men becoming quite familiar with the use of the x-ray, scattered throughout the middle west, who can treat exophthalmic goiter, and I do not believe it is absolutely necessary to keep tab on the results of the metabolic rate. I think you must treat according to the responses. You want to slow down your thyroid action, and your treatment is going to be governed by results, not by the one ysmptom or sign of slowing down your metabolic rate. I do not want to deprecate that one laboratory test, but I do not think any one who is familiar with the use of the x-ray who has not the means of testing out this metabolic rate should hesitate. Let him treat according to the results of his x-ray.

Dr. Roeder stated in two cases who are going to die that they have had plenty of x-ray. Possibly they have. That would depend upon the results. You can test the action of the thyroid with x-ray.

Dr. Rowe is very modest in stating his 100 per cent of results in x-ray treatment. Dr. Dunham of Cincinnati was very bold in stating his 100 per cent. He said it was the most efficient method and the one treatment of election. I think it is one of the good treatments — not that it can replace surgery or medicine. You noticed Dr. Rowe's x-ray treatment was preceded by the most careful medical management any one could hope for.

One other point is this: There is that interlocking of the natural secreting organs. Where the case is at all stubborn, use the x-ray and treat the ovaries. Just why that does the trick I do not know, but it does. I was gratified last December to hear Dr. Dunham say in five cases which he found stubborn, he had recourse to x-raying the ovaries, with most gratifying results.

HOMER DAVIS, M. D., (Genoa): This seems to me the most intelligent symposium and discussion of this subject I have ever heard. It has impressed me wonderfully. I have heard discussions of the Tri-State, and of the American Congress of Physicians, and I surely want to congratulate Nebraska upon her talent.

J. E. SUMMERS, M. D., (Omaha): Within a very short time I had four cases at the University Hospital of goiter placed in my service. Two of them were toxic adenomata, which I removed, and the others were exophthalmic. I thought they were good ones. I took the opportunity of referring them to Dr. Quigley to treat with radium. He informs me in one hundred fifty cases, he has had 60 per cent of symptomatic cures. I thought it was a fine chance to learn something about it in these two cases. If my colleagues, Doctors Davis and Jonas, will follow my example, we will put out some of these cases to the x-ray and radium men and find out, and give you sure reports of what's what.

J. D. McCARTHY, M. D., (Elgin): I should like to make one point about the age at which we are supposed to look after our colloid goiters. I have found the age of adolescence is one we will have to abrogate and go to an earlier age in a great many children. This has been most forcibly brought out over the past few years in that a great many of them in my territory have been found, some of them giving real toxic symptoms.

The other point I should like to make is in regard to making basal metabolic rates in the office. A great many of us, particularly those living in what we might term the thyroid belt, are not so fortunate as to have a hospital. A great many patients are not as much at home in a hospital as in the office of the doctor with whom they are acquainted; so that I feel a great many of these patients can and do receive a real test, if properly handled; and I think that can be very well done by telling the patient that there is to be no breakfast eaten; that she is to be as quiet as possible for twelve hours prior to the basal metabolic reading; to arrive one-half hour before it is taken; and when you follow up the basal metabolic rate you are enabled definitely to check your prior results.

I might state in some I have had the opportunity of taking, they have checked with rates taken at different hospitals later on by the patient hospitalized for surgery or x-ray.

I might also state I think the basal metabolic rate which has been brought out by the prior speaker is very necessary in checking up patients who are taking x-ray treatments. I do not believe the clinical findings alone can be depended upon; but as a group picture with the basal metabolic rate and the clinical findings, we have something definite to be guided by.

DR. EMERSON, (closing): My part of this symposium has met with little discussion, as I expected.

The metabolic rate can not be used to make a diagnosis of goiter. A single reading is of little value. At the same time, there is no other disease in which the metabolic rate is found to be so constant day by day as in goiter; and as Dr. Davis pointed out, the trend of metabolism is the important thing—the question of whether it is going up or down—consequently repeated readings of the metabolic rate are important.

I also want to commend Dr. Bliss for bringing out so ably the danger of over-dosing or indiscriminate treatment with iodine, and that is particularly true in adults. The work Dr. Kimball stressed was as a prophylactic in children, and in this stage iodine therapy is effective.

Dr. Rowe is very conservative in actual practice. In an effort to put forth to you the merits of the x-ray, he has seemed to be critical of surgery; but I know that is not actually the case.

DR. MAYHEW, (closing): I hope I was not misunderstood. I have all respect for the determination of the metabolic rate. I have no question regarding it whatsoever. The point I meant to bring out was there was a border-line case which can not be determined by the metabolic rate alone. A great many cases of toxic goiter of various kinds can be thoroughly diagnosed without anything except, as was said, a conversation over the telephone. On the other hand, there are some that are very dubious, and in those cases, extraordinary efforts must be made in the accuracy of the diagnosis.

The surgical and x-ray aspect promises to be interesting. I wish to say to the surgeons and to other members present that I think they can accept Dr. Rowe's statements without any question. He is thoroughly honest in his findings and reports them to you accurately; so I advise you to be careful in your findings, because they might be questioned.

DR. BLISS, (closing): Of course the question of goiter is an immense one, and it would take days for us all to discuss the whole problem. It is only natural the discussion in the main should hinge on the treatment of the condition after it has developed.

I am wondering whether we got over sufficiently the idea of prevention of goiter? We all know the work of Kimball and those other men. Prevention is greater than cure. If we can even prevent in the prenatal life, perhaps our surgeons and x-ray men in the next generation will not have the amount of work to do in goiter they have to do in this one.

The use of iodine in adolescent or prenatal goiter is without question here to stay. Again I want to give this warning of the indiscriminate use of iodine in goiters of all sorts. Your colloid goiters in adults should all be carefully watched. The use of iodine should be confined to the doctor, not to the departments of health, and not to sellers of salt. It should be up to the doctor to prevent these goiters, thus preventing necessary surgery or x-ray later on.

Discussing medical treatment, of course I did not say many things we might have said about the treatment of any majority of symptoms as they arise. We all will have to admit we do not know what exophthalmic goiter is. If we did, we might be able to measure the resistance of the individual patient. That is a hard thing to do. Will this patient stand surgery? I think all medical men should not be too ready to refer their cases to a surgeon immediately; and yet we know we must co-operate with them; that the greatest good can be done, without question, by co-operation of the general practitioner, the so-called internist, the surgeon, and the x-ray man.

I want to stress again the value of psychic treatment of the condition we call exophthalmic goiter. I also want to repeat once more that digitalis is not indicated in a toxic heart or a fast heart, but in an irregular heart, and that is usually the fibrillating auricle. There is no question of the value of digitalis in that type of condition.

DR. ROWE, (closing): I regret very much that the essayist for the surgical treatment of goiter was not here today. I hope his paper will appear when the symposium is printed in the Journal in order that the subject may be completely discussed.

Several things took my attention in the discussion. A few of them I should like to comment on. In the first place, I should like to disabuse any one's mind I claim 100 per cent cures of my cases. As a custom in the clinic in which I am working, all of our cases do not go to the x-ray department. We try to select the cases. Some go to the hospital and are operated, and some go to the x-ray department and are treated in the manner in which I have outlined.

We have found the basal metabolism way of checking the cases is of great value. I do not believe you can rely upon the clinical observations entirely, any more than upon the clinical observation of the temperature. I think the thermometer is necessary, and I think the metabolimeter is necessary for one who cares to do refined work, just as the electrocardiograph is necessary for the cardiologist.

I regret we must divide the subject into three divisions: medical, radiological, and surgical. There are really only two types—one medical, and one surgical. The x-ray should be included under medical treatment; but there are so few internists who are radiologically trained, it is necessary to make this further division. Occasionally you can share the responsibility with the internist or surgeon, but as a rule, the radiologist must be as independent in his treatment as the internist or surgeon.

I think if the surgeons who thought I was a little critical of their methods of treatment will read carefully my paper again, they will find I have a spirit of conservatism running through the paper. I have been through enough discussions of this subject to know where the hard places come; and I have been present where the discussion was almost a free-for-all fight. I know something about the animosities that have been aroused. I am glad to see in this symposium, as in the ulcer symposium this morning, the different specialists are getting together more and more and uniting upon a general plan of treatment.

In regard to Dr. Summers' remarks, I wish he had come in a little earlier. I hope the University hospital starts something like he has suggested, but I hope they provide for the careful observation and team-work that are so necessary, which have been carried out so well in the Massachusetts General hospital, where they have been studying their cases a number of years. Their first report was to the effect x-ray accomplished more than surgery, and it is only the introduction of the spoon-bill type of operation that has recently caused them to reverse their decision and they now put surgery first; yet they have not discarded their x-ray treatment.

I know very little—nothing from experience—of the effect of radium.

In closing, I want to impress again two essentials: rest, and the psychic control of the patient. Whether surgery or x-ray treatment is used, they are the two most valuable aids in preparing the patient, and bringing about permanent relief.

SURGERY OF TRACHOMA

S. Lewis Ziegler, Philadelphia (Journal A. M. A., Feb. 6, 1926), asserts that the complications of trachoma are persistently maintained by two mechanical processes: (1) lid friction, from blepharophimosis and trichiasis, and (2) lacrimal maceration, from perversion of the tears and obstruction of the duct by trachomatous invasion. The practical problems involved are (1) to preserve normal tissue by conservative surgery, or, if this fails, (2) to resort to radical surgery. The conservative surgery of trachoma calls for (a) canthotomy and (b) rapid dilation of the duct, combined with (c) galvanocautery puncture, (d) Knapp's roller operation and (e) freezing by carbon dioxid snow; while (f) galvanocautery peritomy may be used to relieve pannus. The radical surgery of trachoma requires, in addition, (g) Burow's splitting of the cartilage or (h) Kuhnt-Heisrath's tarsal excision.

MODERN ASPECTS OF NUTRITION: THE PATHOLOGY OF MALNUTRITION

18. Some Recent Viewpoints with Reference to Treatment of Acidosis—Continued.

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TREATMENT OF ACIDOSIS IN DIABETIC COMA BY MEANS OF INSULIN

The clinical experience and the experimental work of Banting and his associates(1) have demonstrated beyond dispute that insulin promotes the combustion of glucose. Cullen and Jonas(2), Bock, Field and Adair(3), have also demonstrated beyond doubt that the administration of insulin is the most efficient means with which to combat acidosis in diabetes. Joslin(4) and all other prominent clinicians specializing in diabetes attest to the fact that insulin is a specific in diabetic coma. It overcomes the symptoms in this condition and restores blood alkali to normal. The cure of diabetic acidosis by the administration of insulin shows that the symptoms of acidosis are due to the pharmacological action of the products of disturbed oxidation or to some deep-seated metabolic disturbance rather than to mere neutralization of blood alkali by acids. Experimental evidence and clinical observation in diabetes indicate that low blood alkali may be merely a concommittant and not an essential factor in acidosis.

THE DOSAGE OF INSULIN IN DIABETIC COMA

As to the number of units of insulin given in diabetic coma, the method of various clinicians do not coincide. Joslin, Root and White(5) have worked out a scheme of administration depending upon the number of hours the patient in coma is expected to live. If this period is estimated at 24 hours, 20 units are given every hour until clinical improvement takes place, and the blood and urine on analysis give evidence of low sugar in the former and diminished carbohydrate elimination in the latter, and also a decrease in acetone bodies. Insulin, however, but in much smaller doses should be continued in the post-comatose state, after the patient has passed the danger point. If the period of life expectancy is only 12 hours, the dose is 40 units every hour. This dose is lowered to 20 units as soon as improvement sets in. If, however, the patient is believed to be capable of holding out only for six hours, 40 units are administrated every 30 minutes or even every 15 minutes until the amelioration of symptoms becomes evident.

GAUGING THE SEVERITY OF DIABETIC COMA

How are we to gauge the severity of the coma? The gravity of diabetic coma may be measured by the intensity of the stupor or coma; by the extent of dedydration as indicated by the dryness of the skin and mucous membranes, and the softness of the eyeballs; by the type of breathing, which at first partakes of the nature of deep rapid respiration with exaggerated inspiration, but which, as the exhaustion of the respiratory center sets in, assumes the character of slow and shallow breathing; by the condition of the heart and circulation as determined by the rapidity of the pulse, and the height of the blood pressure, which may be below 80 systolic; by the extent of the subnormal drop in rectal temperature, which may fall to 95 degrees F. or below; and by an increasing tendency to hemorrhage, as evidenced by the presence of blood in the gastric contents or in the vomitus.

INFECTION MAY BE A VERY IMPORTANT ETIOLOGICAL FACTOR IN DIABETES

In regulating the size of the dose of insulin we must not overlook the influence of infection upon the course of diabetes. Menten and Manning(6), Zeckwer and Goodell(7), and Levine and Kolars(8) have shown that the intravenous or subcutaneous injection of micro-organisms result in hyperglycemia. Thomas(9) correlates this hyperglycemia with hydropic degeneration of the islands of Langerhans in the pancreas, occurring in animals injected with bacteria.

That infection may be an etiological factor in diabetes and also in diabetic coma is suggested by the clinical findings of many investigators. Gettler and St. George(10) observed a high level of blood sugar in furunculosis, and Olmstead and Gay(11) demonstrated a low sugar tolerance in the same condition. Pemberton and Foster(12) reported low carbohydrate tolerance in sinusitis. The last two workers have found also low sugar tolerance in arthritis and in other focal inflammatory processes. Labbe and Boulin(13) showed the existence of a decidedly reduced assimilation of glucose in acute fevers, such as typhoid fever and rheumatic fever. They consider it very probable that diabetes can result from repeated infection.

The removal of a focus of infection produces a remarkable improvement in carbohydrate metabolism. Pemberton and Foster(12) described a few cases of infected non-diabetics in whom they observed a return to normal carbohydrate tolerance after the removal of a focus of infection. With reference to diabetes, it is worthy to quote

Jones(14). of Boston, who stated the following at the 1926 meeting of the Nebraska State Medical Association held at Omaha: "The most striking and important group of cases are those in which septic foci, acute, subacute or chronic, are removed. The cholecystitis cases are the striking examples in which great immediate and permanent benefit is derived. In other words, these patients are septic and diabetes cannot improve in the presence of sepsis. Removal of a focus of infection changes the aspect of the case from that of a patient losing ground steadily to a comparatively healthy person in whom it is relatively easy to control the diabetes." Cousins(14a) recently described a case of an apparent cure of diabetes following the removal of a focus of infection.

ABDOMINAL AND RECTAL INFECTIONS ARE ALSO BELIEVED TO HAVE A CAUSAL RELATION TO DIABETES

The relation of abdominal and rectal infections to diabetes mellitus has also been pointed out. Barber(15) incised the gall-bladder of dogs and dropped into it a glass bead containing fecal matter. The bladder was subsequently closed, and after an interval of 1 to 60 days the animals were killed. Glycosuria was noted in the animals, and this was attributed to changes in the pancreas consequent on infection from the gall-bladder. Eustis(16) records 36 cases of alimentary glycosuria. Of these 41 per cent showed during long observations definite gall-bladder disease, and 16.6 per cent had definite symptoms of diabetes. Visher(17) also reports upon the relation of abdominal and rectal infections. He maintains that infections often precede and accompany the development of diabetes. Overeating and obesity predispose to constipation, colitis, cholecystitis and hepatitis, and these in turn cause pancreatitis. When the pancreas becomes infected from these and other sources, overwork through excessive ingestion of carbohydrate tends to aggravate this infection, and clinical diabetes results.

INFECTION, GENERALIZED OR LOCALIZED, CAN FORCE THE ONSET OF DIABETIC COMA

A general or local bacterial infection is often the direct cause of the onset of coma in a patient who has diabetes mellitus. In each of seven cases described by Graham(18) an infection was present, and was probably responsible for precipitating the patients into coma. Most of them had diabetes for some years, and their condition had never been serious. Infection may also complicate and render more severe a true diabetic coma. Williams(19) reported nine cases of coma. In one of these a septicemia was present, secondary to gangrene of the stump of an amputated leg. Out of fourteen cases of coma described by Campbell(20), seven died and five of the fatalities were associated with conditions sufficient to result fatally apart from the diabetic condition. Frissel and Hajek(21) found five cases of infection in six cases of coma. Three patients had pneumonia, one was afflicted with a carbuncle, and one had German measles. Collier(22) gives two cases of diabetic coma in which pneumonia was present. Joslin, Gray and Root(23) report one case of diabetic coma in which pneumonia was discovered at autopsy.

INFECTION AFFECTS MARKEDLY THE POTENCY OF INSULIN

Infection, Minkowski(24) finds, lowers the action of insulin. From the experiments of Richardson and Levine(25) we learn that this lowering is due to a diminished carbohydrate tolerance. Rabinowitch(26) observed that in the presence of infection in a diabetic even extremely large doses of insulin fail to lower the blood sugar. Graham affirms that the amount of insulin required to lower the blood sugar of the comatose patients in whom infection is present is much greater than that required for the patient in whom no infection is detected. Profound anemia is another condition which may render insulin impotent. Adams(27) reports three cases of pernicious anemia associated with diabetes melitus in which the hormone proved ineffective. Perhaps another condition which militates against the pharmacological efficiency of insulin is the hyperfunctioning of an endocrine gland, for it has been shown experimentally that adrenalin or pituitrin counteract the influence of insulin. *From our present knowledge we may state that infection or pernicious anemia, associated with diabetes, calls for a greater dosage of insulin than is necessary in a diabetic whose disease is uncomplicated by these conditions.*

IN CONJUNCTION WITH INSULIN IN DIABETIC COMA GLUCOSE SHOULD BE ADMINISTERED

Some clinicians, Joslin(4) for instance, have decided that it is not necessary to use glucose as a safety measure in diabetic coma, when large doses of insulin are called for. Such decision and the practice of dispensing with glucose are entirely wrong. Happily it must be stated, other clinicians, Foster(28) for instance, still use sugar with insulin.

Joslin contends that the sugar in the blood of the patient in diabetic coma is present in sufficient quantities to take care of any excess of insulin. When the acidosis is not profound before coma is present the insulin dosage is comparatively small and the glucose in the blood may be sufficient, but at later stages of toxemia this does not seem to be the case, and glucose must be supplied with insulin. Basing the blood as approximately 10 per cent of the body weight, the glucose in the blood, which is indeed very high in diabetic coma, varies between 30 to 75 grams. More is constantly being formed, and the elimination through the kidneys is also continuous. If 1 unit of insulin takes care of 1 to 2 grams of glucose, it is very evident in the face of large doses of insulin that there is insufficient glucose in the blood to correct the disorders in fat oxidation and to take care of any excess of the hormone.

From another point of view it also becomes evident that sugar must be supplied. During the stage of coma the diabetic loses weight, as a result of the destruction of protein, which takes place perhaps in an effort to supply antiketogenic material. Such loss of protein at such a time of biologic adversity as exists in coma is apt to make the road to recovery a little harder. Sugar spares protein, and it is for that reason alone that we ought to give a comatose patient the means of preventing its destruction.

The detoxicating effect of glucose is again well illustrated in the findings of Parsons(29). He injected 20 per cent acetone into the rabbit in doses from 1.5 to 4 c. c., depending on its weight. These quantities were sufficient to cause shock and often death. If, however, glucose (5 c. c. of 20 per cent solution) was given intravenously, it was generally sufficient to bring the rabbit out of shock almost immediately, and to cause all signs of acetone intoxication to disappear.

The use of glucose solution has the added advantage, that if given at intervals, very large doses of insulin may be injected without fear of insulin shock. Foster recommends a 50 per cent solution (20 grams in 40 c. c. of saline) given intravenously until the patient is able to take orange juice. The sugar may also be given with the physiological salt solutions which are administered subcutaneously, intraperitoneally or subpectorally to relieve the patient of the intense dehydration which accompanies diabetic coma. Some clinicians give 1 to 2 grams of carbohydrate for each unit of insulin. John, of Cleveland(30), has recently pointed out the fact that the action of insulin is variable in reference to its power for lowering blood sugar and producing shock. It is therefore advisable to watch the sugar in the blood and urine, and to be guided in the administration of sugar by the analytical data.

SODIUM BICARBONATE IS UNCALLED FOR IN THE TREATMENT OF DIABETIC ACIDOSIS

Although alkalis have been employed in the treatment of acidosis, their use has altogether been abandoned or very much restricted in the treatment of acidosis in diabetes. The needlessness of sodium bicarbonate in diabetes without coma or in diabetes with coma is evident from the fact that Joslin, Foster, Newburgh and Marsh, and others are no longer employing it. Joslin(31) has abandoned its use since 1917, and has up to the present treated more than 2,000 patients without alkalis, and with no desire to return to them. On the contrary, he feels it his duty to continue without them. No diet is more predisposing to coma than a high fat diet. Yet no alkalis have been employed by Newburgh and Marsh.

One reason that may be raised against the routine employment of alkalis in diabetes and especially in diabetic coma is the disagreement existing among those who use alkali therapy as to the quantity to be given. Von Noorden and Woodyatt call for large amounts. The Toronto clinicians, Olmsted and Banting, Campbell and Fletcher, use alkali in amounts seldom in excess of 30 grams in 24 hours. Allen uses but a few grams. Bock and Fitz(32) recommend from 15 to 35 grams of sodium bicarbonate in 24 hours. They recommend this quantity routinely not because all patients require it, but because their studies in coma have brought to light that a certain percentage of the cases they have treated gave proof of acidosis, not due to the ketone acids, but to some yet unidentified organic acid.

ALKALI IS NOT ALWAYS INDICATED IN KETOSIS, SINCE ACETONE BODIES MAY BE PRESENT IN THE BLOOD WITHOUT LOWERING THE ALKALI RESERVE.

Alkali is not even always indicated from clinical findings. The work of Peters, Bulger Eisenman and Lee(33) is interesting in this connection. They claim that ketosis of considerable severity may develop in a diabetic without appreciably affecting the bicarbonate of the plasma. In these cases chloride is usually found reduced, and from it is evidently derived the base required for the neutralization of beta-hydroxybutyric acid and diacetic acid. The reduction of chloride may occur with extreme rapidity and without any appreciable augmentation of chloride secretion, indicating that the chloride is retained in the tissues. In severe diabetic acidosis, base for the neutralization of ketone bodies may be obtained from chloride or from both bicarbonate and chloride.

SODIUM BICARBONATE DOES NOT ANTIDOTE THE NARCOTIC PROPERTIES OF THE ACETONE BODIES

The administration of alkalis in diabetic coma does not produce the same clinical result as insulin does. Even when the alkalinity of the blood of the patient is restored to normal, the coma may still persist. The abnormal compounds in the blood of the comatose in diabetes, beta-hydroxybutyric acid and diacetic acid, have narcotic properties, which continue even when these acids are neutralized, and remain in the blood in the form of their sodium salts. It must not be forgotten, on the other hand, that ketone bodies, according to Booher and Killian(33a) may be present in the blood, even though its pH value and its alkali reserve indicate distinctive alkalosis.

SODIUM BICARBONATE CAUSES AN INCREASED PRODUCTION OF ACETONE BODIES

Furthermore, it must be very strongly emphasized that sodium bicarbonate does not, as insulin does, help in cutting down the quantity of acetone bodies in the blood. On the contrary it helps to increase their production. This fact has an abundance of experimental evidence in the work of Joslin(34) (1904), Forssner(35) (1911), Allen, Stillman and Fitz(36) (1919), Haldane(37) (1923), Haldane, Wiggleworth and Woodrow(38) (1924), Hubbard and Wright(39) (1924, 1925). Alkalis evidently interfere with the combustion of carbohydrate, that is they lower the carbohydrate tolerance, and thus increase the formation of beta-hydroxybutyric acid, diacetic acid, and acetone.

This effect of sodium bicarbonate is manifest even in therapeutic doses. To quote from Joslin(40): "The constant use of alkali appears to promote the constant excretion of acid bodies. I have known a moderate acidosis of months' duration to vanish with the omission of soda. It is frequently to be observed that when alkali is omitted in the convalescent stages of a diabetic cure that acidosis as measured by the urine, entirely disappears but will be brought back by resuming the alkali." In the experience of Joslin, a very small quantity of alkali may cause the appearance or re-appearance of diacetic acid in the urine, as determined by a positive ferric chloride reaction.

SODIUM BICARBONATE IS A DRUG THAT CANNOT BE USED INDISCRIMINATELY

Sodium bicarbonate is by no means a drug that is always safe. Its indiscriminate use carries with it some danger, that is the danger of edema and tetany. Joslin(41) observes that the administration of sodium bicarbonate is frequently followed by a gain in weight. Joslin and Goodall(42) explain this gain on the ground that the administration of sodium bicarbonate favors excretion of large quantities of retained acid bodies, and leads to irritation of the kidneys, resulting in their inability to excrete salt in the normal manner. If the salt in the diet is restricted there is less to be retained and no gain in weight takes place. This explanation may not be the correct one, for Falta(43) has recently found it possible to cause the edema to disappear by means of potassium carbonate, and Atchley, Loeb and Benedict(44) have removed edema in diabetes with the use of 29 to 35 grams of calcium chloride a day.

SODIUM BICARBONATE SHOULD BE GIVEN WITH EXTREME CARE IN PRESENCE OF RENAL DAMAGE IN ORDER TO PREVENT EDEMA

Sodium bicarbonate, if given at all, in diabetic coma should be given with extreme care. In this condition the role of the kidneys is important. Even in diabetes not complicated by nephritis they are under strain, and their burden should not be increased during diabetic coma by any measure in the treatment. Albuminuria is a common accompaniment, and the urine may excrete as much as 2 per cent albumin. Evidence of renal irritation is present in the "showers of casts" in the urine. Anuria may also develop. In the presence of deficient renal elimination sodium bicarbonate may be a liability in treatment rather than an asset. In this connection it is well to mention that Binger, Hastings and Neill(45) reported edema associated with moderate bicarbonate administration during convalescence from pneumonia.

SODIUM BICARBONATE MAY GIVE RISE TO SYMPTOMS OF TETANY

Sodium bicarbonate is apt to give rise to symptoms of tetany. Howland and Marriott(46) observed this condition in young children following its therapeutic administration, and cite three cases. Freeman(47) reported in two children tetany associated with excessive use of sodium bicarbonate. One child had acidosis. The symptoms of tetany disappeared when alkali was stopped, and reappeared when it was resumed. The other child had pyelitis. It developed tetany on the administration of the alkali.

Among the accidents following sodium bicarbonate in the treatment of diabetic coma is the occurrence of convulsions, which may lead to a rapidly fatal termination, often in a few hours. Blum(48) has strongly emphasized in diabetic coma the onset of convulsions as the result of alkali. Convulsions need not necessarily result, for Sanford(49) reports a case of death caused by alkali administration, and at no time were convulsions evident. He administered sodium bicarbonate solution to a diabetic with acidosis. The patient near the end of the injection developed in both hands symptoms of tetany, became comatose, and died six or seven hours later.

Harrop(50) gives an interesting history of a patient with tetany, produced or at least precipitated by the intravenous injection of sodium bicarbonate. His case is so typical that it would be well to recount it in detail.

Before partaking of food the patient swallowed in the morning of March 8, 1918, two 7½ grain tablets of bichloride of mercury dissolved in water. She was admitted to Johns Hopkins Hospital about noon. The next day, March 9th, she became totally anuric and continued to be so until her death on March the 18th.

Her plasma bicarbonate being 45 volumes per cent, Harrop administered intravenously 500 c. c. of 5 per cent sodium bicarbonate. No untoward effects were observed. Twenty-four hours later, on March 10th, intravenous infusion of 700 c. c. of sodium bicarbonate was again given. The injection was made slowly and was apparently well taken by the patient. Five minutes after the administration of the alkali, the patient's face grew pale. She became very apprehensive, and commenced to have great inspiratory difficulty. She complained of numbness and tingling of the fingers, and begged to have them rubbed. The hands assumed the typical obstetrical position, pedal spasms occurred, and a first degree phenomenon (Chvostek's sign) was obtained. The extremities became cold. The pulse was accelerated to about 130; the blood pressure did not rise. The acute attack lasted for about 15 minutes, after which the difficult breathing ceased, and her apprehensiveness somewhat abated.

A day later, March 11th, that is twenty-four hours after the original attack, the plasma bicarbonate analyzed 80 volumes per cent. On this day Chvostek's sign was obtained, and Trouddeau's phenomenon was readily elicited. The latter was present until March 15th; Chvostek's sign was positive the night before her death, which occurred on March 18th.

Beginning on the fifth day, March 12th, pitting edema of the lower legs became noticeable, and on March 15th evidence appeared of the accumulation of moderate ascites.

The experience of Harrop calls attention to a danger not too remote, which attends the use of sodium bicarbonate in conditions in which renal function may be markedly impaired.

We should not leave the subject of tetany with relation to sodium bicarbonate without also citing the instructive experiences of Healy(51). In 1921 he reported seven cases of tetany in female patients in whom a celiotomy had been performed for pelvic trouble. These were four deaths and three recoveries. The typical symptoms were observed as early as seven hours after the operation, and disappeared within 48 hours either in response to treatment or through death of the patient.

In the fatal cases the symptoms were hyperpyrexia, epigastric distress, tachycardia, bilateral symmetrical spasms and muscle contractions involving especially the upper extremities, and convulsions.

The cause of the symptoms of toxemia was the glucose sodium bicarbonate enema administered as a routine in the operative cases. This enema was given as soon as possible after the return of the patient from the operating room, and again in four hours. The first enema also contained 40 grains of sodium bromide. Through an error of calculation 1200 grains of sodium bicarbonate were administered instead of 180 grains.

THE TOXIC CHARACTER OF SODIUM BICARBONATE DUE TO THE SODIUM POISONING, RATHER THAN TO THE ALKALOSIS IT MAY SET UP

The work of a number of investigators leads to the conclusion that the toxic manifestations of sodium bicarbonate are merely those of sodium poisoning. Munzer(52) reported an extensive series of experiments with a large number of sodium salts. The toxic effects were the same with all the salts. The manifestations centered around the neuro-muscular system and were as follows: Increased reflex excitability, fibrillary twitching, tonic and clonic convulsions with opisthotonus, and finally death. Starkenstein(53) reported the same round of symptoms on the administration of the sodium salts of either ortho-phosphoric, metaphosphoric, pyrophosphoric, inosite phosphoric or citric acid.

Greenwald(54) is of the firm opinion that sodium poisoning is the underlying cause of the toxic manifestations of sodium bicarbonate rather than alkalosis. He claims that at the time convulsions appear, the concentration of sodium in the plasma is the same after the administration of sodium bicarbonate as it is after the administration of the sodium salts, such as the chloride, sulphate or phosphate. The symptoms of tetany he therefore ascribes to sodium poisoning, resulting from an excess of sodium ions, which disturbs the equilibrium between them and other ions. In support of the theory of a disturbed ionic equilibrium it may be said that Starkenstein and also Healy have been able to remove the symptoms of tetany by the administration of calcium salts, while Atchley, Loeb and Benedict have successfully treated edema by means of calcium chloride.

CHRONIC INFECTION AS A CAUSE OF ACIDOSIS

In reviewing the methods used for removing acidosis through its cause and not merely in temporarily relieving its symptoms, we must not overlook chronic infection as a cause of acidosis. We are familiar with the presence of acidosis in acute infection, but we are apt to overlook this condition in chronic infection. McGuire(55) points out chronic appendicitis as a cause of acidosis in children. He reports the following findings in such condition: Anorexia, mild stomatitis with red varnished tongue; diarrhea, repeated vomiting, which may assume the pernicious type; abdominal and gastric tenderness; odor of breath due to acetone, and resembling that of chloroform or russet apple; acetone and diacetic acid in the urine. Such foci of infection, as is to be found in diseased tonsils, in abscessed teeth, in suppurative processes in glands, joints or bones, may give rise to the syndrome, commonly spoken of as acidosis.

It is evident that the acidosis produced by chronic infection cannot be successfully treated with alkalis, but only by removing the cause. It is well to remember that acidosis is not a cause but a result, that it is not a disease but a symptom. In order to remove the symptom, we must therefore treat the disease.

In the next paper we will discuss alkali treatment in peptic ulcer, a condition in which gastric hyperacidity plays a prominent part.

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SECONDARY ULNAR NERVE PARALYSIS: REPORT OF CASE WITH FRACTURE OF TROCHLEA.

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Paralysis of the ulnar nerve, immediate and delayed, is a frequent paralysis of the upper extremity. This nerve by its superficial position and bony relations to the elbow joint is exposed to frequent trauma. The condition was first described by Panas in 1878. In 1911, J. Ramsay Hunt wrote a most interesting article dealing with delayed ulnar paralysis, caused by occupations resulting in pressure of the ulnar nerve in the hand and giving rise to motor symptoms rather than sensory. Again in 1916 Hunt wrote more exhaustively on delayed ulnar nerve paralysis. The subject has also been given considerable attention by various other writers who have directed their attention to the relation of elbow injuries to ulnar nerve paralysis.

It is rather difficult to base the division of immediate and delayed paralysis on the time element since the question of the length of time arises. If the nerve is directly injured there may follow progressive fibrous changes in the nerve which may lead to an early onset of paralysis. If only the tissues around the nerve are injured and reparative changes follow which disturb the nerve, the paralysis in relation to the primary injury is remote yet recent to the reparative change which disturbed the nerve. Again a fracture may take place which does not injure the nerve but later on the enlarging callus comes in contact with the nerve and leads to a paralysis. In another group of cases there has been an old injury which has changed the anatomical relations exposing the nerve to injury. Later, a slight injury occurs which with normal relations is of no importance but it now leads to a rapid paralysis. Again, in both instances, the primary injury did not lead to paralysis but secondary insults to the nerve led to a rather rapid development of paralysis. The writer would then prefer to divide nerve paralysis resulting from trauma into primary and secondary paralysis. The primary type occurs at the time of the injury and is a direct result of that injury. The secondary type occurs at some time following the primary injury and is the result of secondary pathological anatomical changes.

Secondary ulnar nerve paralysis most frequently follows injuries in the region of the elbow. The time of onset varies from few weeks to twenty years or more. Fractures of the external condyle have been definitely established as a cause in over 50% of cases. In old fractures of the external condyle there results a shifting of trochlea and subluxation of the region of internal condyle whereby the carrying angle is increased and the groove between the olecranon and internal condyle is narrowed and shallowed. In fracture of the internal condyle the fractured fragment lying in proximity to the nerve may be the offending factor. Fibrous tissue, tumor, a fracture calluses of arm or forearm may lead to pressure on the nerve.

After passing through the internal muscular septum in the lower half of the arm, the ulnar nerve reaches the groove between the internal condyle and olecranon process where it is superficial and exposed to injury. It then enters the forearm by passing between the two heads of the flexor carpi ulnaris, running beneath this muscle then under the volar carpal ligament, it then pierces the deep fascia in the region just medial to the pisiform bone where it is again rather superficial passing over the transverse carpal ligament. The ulnar nerve supplies no muscles of the arm and only the flexor carpi ulnaris and ulnar half of the flexor digitorium in the forearm. In the middle of the forearm it gives off a dorsal cutaneous branch which without giving any branches to the forearm passes back over the ulnar side of the wrist supplying the ulnar side of the dorsum of the hand, the proximal phalanx of the little finger and one-half of the ring finger. In passing over the transverse carpal ligament the ulnar nerve supplies the palmaris brevis muscle. It soon divides into a superficial and deep branch. The superficial branch supplies the ulnar half of palm, the palmar surface of the little finger and half the ring finger and the dorsum of the two distal phalanges of the little and half of the ring fingers. The deep branch passes deep between the abductor and flexor digiti quinti supplying all the muscles of the hypothenar eminence. The nerve in this region grooves the hamulus (hook) of the hamate bone and goes toward the radial side of the hand accompanying the deep palmar arch. Along this course it gives branches to all volar and dorsal interossei muscles and to the lumbricales muscles of the ring and little fingers. It terminates by supplying the adductor pollicus and medial head of the flexor pollicis brevis muscles.

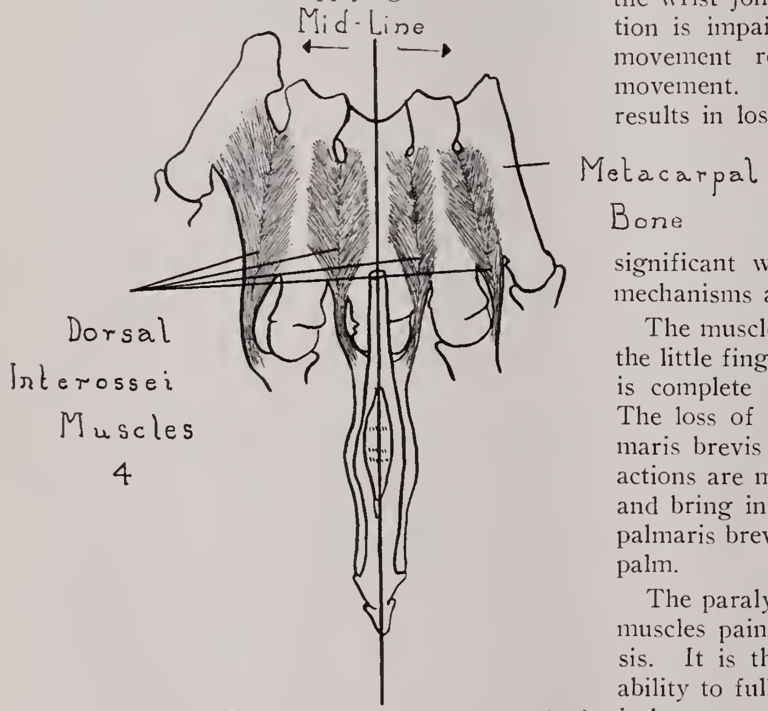

Fig. (1). Dorsal Interossei Muscles. The first and fourth dorsal interossei muscles abduct the index and ring finger away from the mid-line. The second and third dorsal interossei abduct the middle finger to either side of the mid-line.

In delayed ulnar nerve paralysis sensory changes usually appear after the onset of motor disturbances and it is a more pronounced disturbance of the epicritic rather than the protopathic sensibility.

The flexor carpi-ulnaris muscle inserting on the base of the fifth meta-carpal acts as a flexor of the wrist joint and also as an adductor of the wrist joint. If it is paralyzed, flexion motion of the wrist joint is impaired. Also adduction motion is impaired. In fact such an attempted movement results in an adduction extension movement. The loss of the flexor profundus results in loss of motion of the distal phalanges of the ring and little fingers since these tendons insert on the distal phalanges of the ring and little fingers. This is rather insignificant when the lumbricales and interossei mechanisms are reviewed.

The muscles of the hypothenar eminence move the little finger and in ulnar nerve paralysis there is complete loss of motion of the little finger. The loss of the opponens digiti quenti and palmaris brevis would not be so noticeable as their actions are minor; the opponens slightly elevates and bring in the ulnar aspect of hand while the palmaris brevis slightly corrugates the skin of the palm.

The paralysis of the lumbricales and interossei muscles paint the picture of ulnar nerve paralysis. It is the belief of the writer that our inability to fully comprehend ulnar nerve paralysis is because we do not understand the mechanics of those all important muscles; the four lumbricales, the four dorsal interossei and the three volar interossei muscles. A perpendicular line is drawn through the middle of the middle or long finger. (Fig. 1). Now it is the function of the dorsal interossei muscles to abduct or draw away the other fingers from the median line of this finger. The dorsal interossei muscles arise from contiguous sides of two metacarpal bones and insert into the capsule of the metacarpal phalangeal joint and fibrous sheath of the extensor communis tendon. The dorsal interosseous muscle to the index finger in order to abduct would naturally have to insert on the radial aspect of the index finger. There are two dorsal interossei muscles to the middle finger, since it being in the mid-line must be drawn or abducted to either side. The fourth dorsal interosseous is inserted on the ulnar aspect of the ring finger thus enabling it to draw the fourth finger away from the mid-line. The abductor pollicus longus and brevis draw the thumb away from the mid-line. The abductor digiti quinti abducts the little finger away from the mid-line. All of these muscles except the abductor pollicus longus and brevis are supplied by the ulnar nerve.

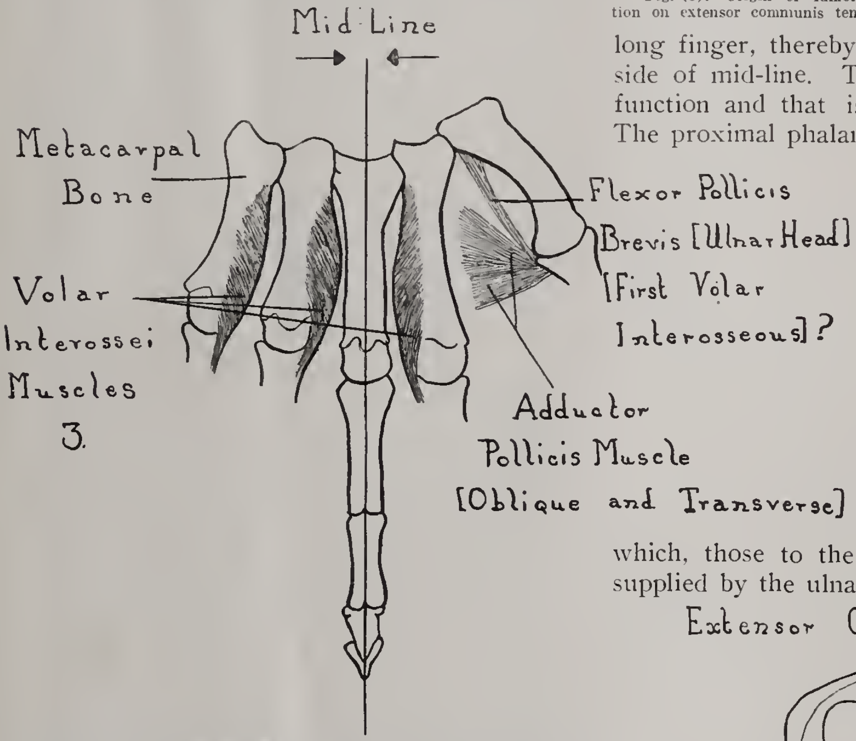
Mid Line
Metacarpal Bone
Volar Interossei Muscles 3.
Flexor Pollicis Brevis [Ulnar Head] [First Volar Interosseous]?
Adductor Pollicis Muscle [Oblique and Transverse]

Fig. (2). Volar Interossei Muscles. The first, second and third volar interossei muscles adduct the index, ring and little fingers toward the mid-line. The second and third dorsal interossei take care of the middle finger. The thumb is adducted by the adductor pollicis muscle.

Now to the volar interossi which adduct or draw the fingers toward the medium line. (Fig. 2). Each volar interosseous muscle arises from a metacarpal bone and inserts on the capsule of the metacarpal phalangeal joint and fibrous sheath of extensor communis tendon of that finger. The first volar interosseous inserts on the medial (ulnar) side of the index finger, the second volar interosseous on the medial (radial) side of the ring finger and the third volar interosseous on the medial (radial) side of the little finger. Thus when the volar interossei contract they draw those fingers toward the middle or long finger. It is recalled there were two interossei inserting on either side of the middle or long finger, thereby pulling the finger to either side of mid-line. The interossei have another function and that is assisting the lumbricales. The proximal phalanx of the thumb is adducted or brought toward the medial line by the adductor transversus and obliquus, a muscle also supplied by the ulnar nerve. The ball of the thumb is brought toward the index finger by the flexor pollicus brevis which is supplied by the median nerve.

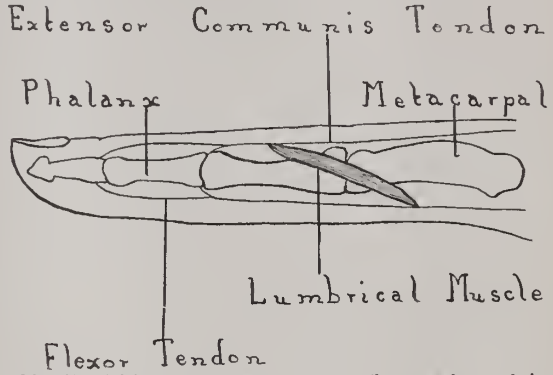

Fig. (3). Origin of lumbrical muscle an flexor tendon and insertion on extensor communis tendon.

The action of the four lumbricals, only two of which, those to the ring and little fingers are supplied by the ulnar nerve is best explained by the accompanying drawings. (Figures 3 and 4). Each arises from the flexor tendon in the

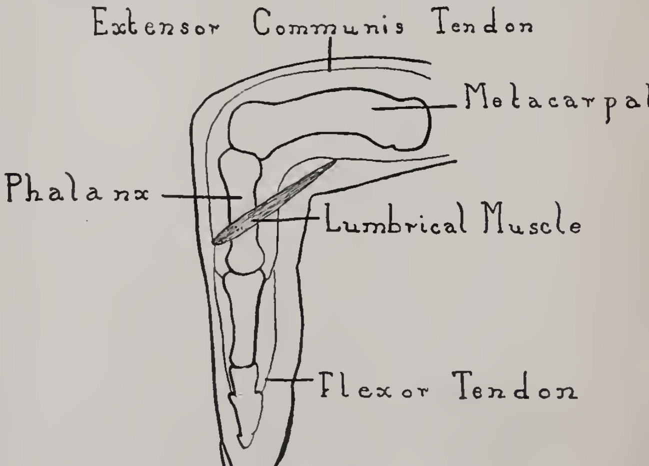

Fig. (4). Flexion of meta-carpal phalangeal joint and extension of inter-phalanged joints. The interossei muscles also assist the lumbrical muscle.

palm of the hand. Each muscle passes around the radial side of the meta-carpal phalangeal joint inserting on the extensor communis tendon of the same finger just behind the first interphalangeal joint. This muscle with the assistance of the interossei flexes the metacarpal phalangeal joint. The lumbrical muscle with some assistance of the interossei muscles pulls on the tendon of the extensor communis and thereby extends both interphalangeal joints. It is noteworthy to recall that the extensor communis tendon although inserting on the middle and distal phalanges has very little extension action on these phalanges; its principal action is to extend the metacarpal phalangeal joint.

Now what would be the position of the little and ring fingers? The metacarpal phalangeal joints are hyper-extended because of loss of lumbricales and interossei muscles. The interphalangeal joints are slightly flexed because of loss of lumbricales and interossei. The distal interphalangeal joints are less flexed because the ulnar half of profundus is paralyzed. The same position is assumed by the middle and index fingers only to a minor degree since the lumbricales of the index and middle fingers are supplied by the median nerve and only the functions of the interossei are lost. The thumb is abducted and the wrist joint is slightly abducted.

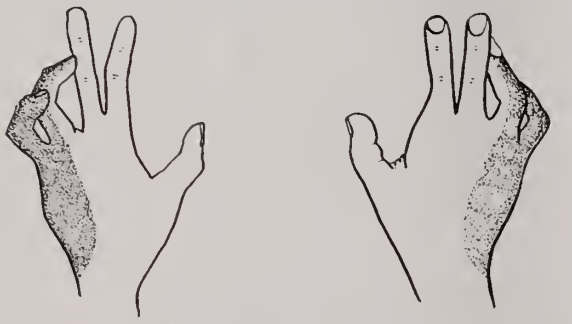

Fig. (5). Ulnar Nerve Paralysis.

There is atrophy of the muscles of the hypothenar eminence, atrophy of the muscles between the metacarpal bones and of the adductor of the thumb.

Electric examination of nerves although in many instances is not a necessity may at other times be of the utmost importance.

It is appropriate to recall the article by Hunt where he describes insult to the ulnar nerve as it passes around the hamulus of the hamate bone in the hand. At this particular location, the nerve is exposed to injury in such occupations as require considerable or prolonged palmar pressure. This may result in a secondary ulnar paralysis of the intrinsic muscles of the hand without sensory disturbances, because the sensory nerve to the ulnar half of the palm, little and one-half of ring finger has been given off before the nerve passes deep around the hamulas. Occasionally a simple sensory disturbance may arise over the destribution of this cutaneous palmar branch from direct injury.

Cervical rib resulting in injury to the medial cord will simulate ulnar nerve disturbance but this can usually be differentiated by history of onset, lack of trauma, pains starting in the neck or arm and cutaneous disturbances of the arm and forearm and particularly on the medial side.

Progressive muscular atrophy at an early stage may simulate ulnar palsy but it usually shows slight progressive wasting, fibrillation, idiopathic muscular contraction and no notable sensory disturbance.

Syringomyelia is a slow progressive development of muscular atrophy with peculiar disturbances of sensation such as cutaneous anesthesia to temperature and pain but not to touch. There is also disturbance of the vasomotor function.

The treatment is a mechanical procedure to relieve the pressure or irritation on the nerve. (1) Naturally at the time of fracture, get as good an anatomical reposition as possible. Some authors advise supra-condylar osteotomy in children at time of fracture to correct the cubitus valgus since simple reliance on the Jones position of hyperflexion is insufficient to prevent valgus deformity in some cases. However this appears rather radical. At a later stage with onset of paralysis this may be feasible. (2) If the groove between the olecranon and internal condyle is narrowed and shallowed, it may be deepened and the nerve freed from surrounding tissue. Fascial tubilization of the nerve should be attempted. (3) The ulnar nerve may be transplanted to the flexor side of the elbow, followed by fascial tubilization. This procedure will relieve the tension on the nerve. (4) Neurolysis of the nerve may be advisable in some cases. (5) When a fragment of bone from an old fracture or a callus impinges on the nerve, it should be removed. (6) If a neuroma is present resection and suture of nerve may be advisable. (7) A combination of any of the above procedures may be indicated in some cases.

The writer has never had to face the problem of treating an occupational ulnar palsy due to trauma of the nerve as it grooves around the hamulus of the hamate bone in the hand (Hunt). However, from an anatomical aspect, it would be advisable and a relative simple procedure to free the nerve from the hamulus and surrounding fibrous tissue.

SUMMARY

In examination of the hand for ulnar nerve paralysis, the following points are noted given in order of their importance:

1. Examine ulnar half of hand, little and one-half of ring fingers for epicritic sensation by piece of cotton or wool, for localization and for fine differences of temperature. Also test for protopathic cutaneous sensibility by deep pressure, pin pricks and extremes of cold and heat.

2. Test for adduction and abduction of fingers by asking patient to separate and bring together the fingers. Also examine for adduction of thumb.

3. Ask patient to hold hand up straight, then flex the metacarpal phalangeal joint to right angle and at the same time keeping the fingers at the interphangeal joints extended.

4. Atrophy of the hypothenar enimence, thumb adductor and interossi between metracarpal bones.

Complete loss or impairment of these functions signifies ulnar nerve disturbance. The treatment is based on removing the attending pathology, freeing the nerve from abnormal surrounding fibrous or bony relations or if necessary transplanting the nerve to the anterior aspect of the elbow.

REPORT OF CASE

D. M. Age 26, white, truck driver, while in the army in 1918 fell off a motorcycle injuring right elbow. He was told there was no fracture yet patient was unable to use arm for about six week. No x-ray was taken at this time. Patient recovered but since then has noticed a slight incapacity of right elbow on slightest trauma. On Nov. 11, 1925 while carrying a trunk up a flight of stairs, slipped and fell on right arm. He continued work that day although he noticed some pain and discomfort. The following morning, the right elbow was exceedingly painful on motion.

Physical examination showed slight contusion of skin over internal condyle. There was slight pressure and motion tenderness over olecranon and internal condyle. No muscular weakness or sensory changes.

X-ray showed fracture of right trochlea and chip off of olecrannon. On close examination these were considered old fractures and the pain probably due to contusion of the bone fragments.

About two weeks later pain was still present. Sensory examination showed no loss of epicritic or protopathic sensation on ulnar side of right hand. There was beginning loss of motion, with weakness on adducting and abducting fingers adduction motion of thumb was lessened. Flexion motion of the metacarpal phalangeal joint with extention of interphalanges joints was somewhat diminished, particularly the little and ring fingers.

Baking and massage and repeated small doses of strychnine were instituted for about ten days. During this time paralysis did not improve but gradually became more exaggerated and there appeared a slight disturbance of epicritic sensibility.

Operation December 12, 1925. It was concluded that the small fragment of trochlea near the internal condyle, probably the result of an old fracture of the trochlea was the offending factor. The chip off of the olecranon and lying in the tendon of the triceps was not considered an element of causation of pain or paralysis. Small incision was made over the groove between olecranon and internal condyle. A small piece of bone about 1 c. c. square was soon exposed. This fragment of bone was adjacent and adherent to the ulnar nerve. This bone although primarily intracapsular, was being gradually extruded from the joint(8). Only a small spicule was within the joint capsule. After removal, the overlying fascia was enclosed around the nerve.

Following day patient began to notice tingling sensations of little and ring finger. Within ten days, baking and light massage were continued. About three weeks later strength and sensation were approaching normal and patient was advised to return to light work for few weeks.

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SURGICAL TREATMENT OF CHRONIC ULCERATIVE COLITIS, WITH A CASE REPORT.

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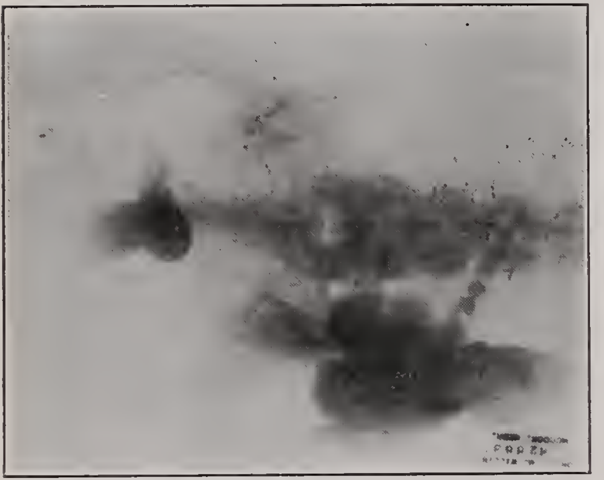
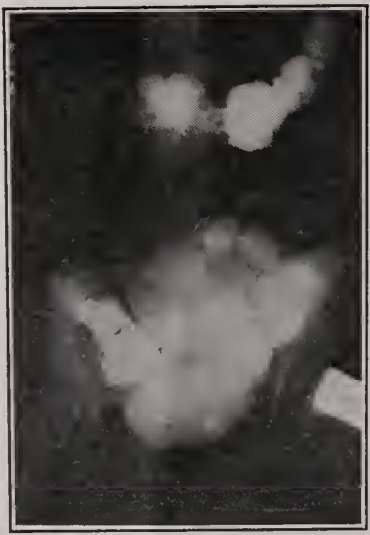
Ulcerative colitis almost always begins in the rectum and extends upward finally involving the entire colon while tuberculosis and actinomycosis usually have their origin in the cecum. The differentiation of these lesions is usually easy. Chronic ulcerative colitis is known to be due to other than amoebic dysentery or bacillus of dysentery. Tuberculosis, actinomycosis, syphilis or cancer has a distinctive x-ray syndrome of its own when the lesions extend above the rectum. In the low type when the lesions are in the rectum alone the x-ray is only occasionally of value in showing an indeterminate lesion. The typical x-ray picture in the chronic stage of the disease shows a narrow nonhaustrated colon with loss of redundency often with narrow areas of either spasm or stricture. In the acute phase the bowel may empty too quickly to get a well filled colon or in this phase it may show tumors of the colon before any clinical signs are diagnostic.

Logan of the Mayo Clinic states that little was known of chronic ulcerative colitis in this country until eleven years ago.


Note the contraction and destruction of the descending and transverse colon in this case of ulcerative colitis.

Clinically there are two principal types. 1st. Those in which the disease is chronic remaining in the rectum or sigmoid or extending throughout the entire colon but in which there seems to be immunity to general toxemia. 2nd. Those in which there is a rapid extension of the disease and but little immunity. In this latter type there is more abdominal distress, often a little fever and at operation or postmortem marked fatty degeneration of the vital organs of the body is found. The inflammation starts first in the rectu mand extends slowly or rapidly throughout the entire colon. In the acute case the entire colon may be involved within two or three months. In some of the chronic cases the disease is confined to the rectum for many years, the x-ray showing a normal colon. The diagnosis in the latter class of cases is made from the clinical symptoms, the characteristic stools and the proctoscopic examination. Amoebic dysentery formerly considered a tropical disease is now found occasionally in the northern states. I had one case last year in which the amoeba were found and the disease yielded promptly to treatment with emetine.

The final stage of ulcerative colitis comes when the bowel wall becomes filled with scar tissue and is greatly thickened resulting in permanent narrowing with entire loss of haustration and the development of strictures. The process is not uniform throughout. Arthritis is the most common complication and one wonders if many of the chronic arthritides do not have their origin in the colon. It is in the final stage of development that surgical treatment must begin to be considered. It is generally conceded that medical treatment of advanced cases is almost useless.


This is a case of tuberculous colitis associated with pulmonary tuberculosis from which the patient died a few months after this radiogram was taken. Note that the caecum and ascending colon are principally involved.

Surgery by short circuiting the terminal ilium through the abdominal wall acts as does a gastroenterostomy for a duodenal ulcer. Colostomy and appendicostomy have been used with success but ileostomy is the operation of choice at this time by most surgeons. If ileostomy can be performed before fatty degeneration of the vital organs has progressed too far and before there is inanition and vomiting it will restore the patient to health and strength. As operation is usually delayed and performed only as a last resort, the mortality is high although the operation is not the direct cause of death. On account of the morbidity and mortality rates being very high the disease when recognized must be considered as most serious.

The complications of the disease are the result of bacterial invasion of other organs or tissues. The commonest is arthritis affecting one or several joints. Perirectal infection comes next and is a very serious condition. When it occurs, there should be no temporizing. Immediate ileostomy is necessary to save the patient's life, as the tissues about the rectum lend themselves to rapid extension of the infection and quick absorption of the toxins. Abscesses in other areas occasionally occur.

In some cases, either the virulence of the disease or the lack of the patient's resistance makes the condition progressive, regardless of any form of treatment. In such cases ileostomy by the method of Brown is advised. The operation is thus attended with great risk, as only the very worst cases and those in which there is no resistance to the diseaes are sent to the surgeon./

Mrs. L. H., white, age 45, housewife, was admitted to St. Catherine's hospital, Dec. 12, 1924.

Chief complaint, diarrhoea, extreme prostration and discharging rectal fistula.

Present illness: During the last week of Sept. 1924, she began having diarrhea. Took to bed two weeks later and has been in bed ever since. Called a physician two weeks after onset. Had as high as 15 bowel movements in 24 hours, gradually lessening in frequency until at the time of admission there were about six. There was much mucus and some blood in the stool. Has never been constipated. Has passed "blood and corruption" from bowels lasting from a few days to a month, for ten years at intervals of about four months.

Past history: Best weight 168, about two years ago. Sept. 1st this year she weighed 148 lbs. She has been losing weight for at least six months. She has always been able to eat anything she wished until Sept., 1924. Swelling began in left ischio-rectal space one month ago and this broke and discharged pus and fecal matter five days ago, then the opposite ischio-rectal space became swollen and is so at present. She had one miscarriage 12 years ago. Mother of one girl nine years of age. Past history otherwise uneventful. She has had repeated attacks of tonsillitis for many years and six of these have been followed by quinsy.

Family history: Father 74, mother 69 living and well. Two brothers living and well. Five sisters living and well. One died of tuberculosis.

Physical examination: Patient was brought to the hospital in the ambulance, being so weakened by her illness that she was unable to walk. Her height is 5 feet 9½ inches, of large bony development. She is emaciated to the extreme that her weight is estimated at 100 lbs. Her temeprature on admission was 100, pulse 110, respiration 18. Her appearance is that of a desperately sick woman. She is very pale. There is an extremely large rectal fistula in the left ischio-rectal space, so large in fact that it would admit the introduction of three fingers. There is one small fistula in the perineum and one in the post-anal space. There is a large swelling in the right ischio-rectal space which is forming an abscess. The structures all around the rectum seem to be honey-combed by infection. Her tonsils and the pillars are red and foul smelling; pus is expressed from them. Her teeth were in good condition. Her head and neck are otherwise negative. On careful examination no suggestion of anything abnormal is found in the chest. The heart sounds are good and the apex in proper position. No evidence of enlargement of this organ.

Abdomen: There are tender areas along the entire course of the colon. The liver dullness is normal and there is no enlargement of the spleen. There are a few areas of distention by gas in the colon. X-ray examination of the colon was attempted but was unsuccessful for the reason that the barium enema was not retained and barium meal was given but did not remain in the colon long enough to secure a satisfactory radiogram. The extremities were negative and also the reflexes were negative. Genito-urinary tract was normal with the exception of a tear of the perineum of moderate degree. The uterus was freely movable and there was no suggestion of pelvic disease. The above was written at time of admission.

Laboratory examination: Urine, Sp. Grav. 1030, reaction acid, albumin and sugar negative, microscopic: excessive amount of epithelium.

Blood, R. B. C. 2,800,000. Haemo. 60%, W. B. C. 9,500.

Stool, amoeba were searched for in the stool on three occasions but not found. Blood Wassermann negative.

Diagnosis: Ulcerative colitis and rectal fistulae, ischia-rectal abscess and a general sloughing of the tissue around the anus.

Indications for operation: Medical treatment consisting of careful feeding especially with carbohydrates, removing all irritating foods from her diet, and attempted rectal irrigation (latter proved unsuccessful as the water ran out the multiple openings as fast as it ran in) were unsuccessful. After careful medical regime for nearly three weeks during which time she made no progress whatever and in fact slowly went backward so it was apparent that she was undoubtedly going to die, a short circuiting operation was undertaken.

Operation: A mid-right rectus incision was made. Very little exploring was done due to the fact that the patient was a bad surgical risk, however, the caecum part of the ascending and transverse colon were very accessible and carefully examined and found to be very contracted and consisting mostly of fibrous tissue. The terminal ilium was brought up into the wound and a knuckle about seven inches from the ilio-cecal valve was sutured to the peritoneum and abdominal wall and then the knuckle was opened with the cautery and large rubber tubing was placed inside the lumen of the proximal and distal opening and sutured there by purse-string suture to prevent contamination of the wound until nature had sealed the abdominal opening. The tubing in the proximal end was several feet long and drained into a bottle by the side of the bed. The patient's pulse jumped up from 110 to 120 during the operation but her expression and general condition were very good and she seemed to suffer very little shock from the operation.

Progress notes: Patient showed very little progress during the first six days then her pulse began to subside, dropping from 125 to 86 by the 14th day post-operative and by this time she was gaining strength and flesh. The colon was irrigated from above downward or below upward each day with normal salt solution. The right ischio-rectal space seemed to be undermined by a cavity so this was injected with methelyn blue, then laid open and curetted and packed on Jan. 17th and from then on the fistula and pathology around the anus slowly improved until at the present time it gives no annoyance whatever and the patient thinks that it is entirely well. Her progress has been exceedingly satisfactory. She left the hospital Feb. 23rd and had been up and walking about the hospital for two weeks, previous to that. She wears a colostomy bag and takes care of it herself. April 1st she returned to my office for examination and she weighed 148 lbs. and she has since gained 20 lbs. more so that she now weighs as much as she ever weighed in her life. She returned early in May and I removed her tonsils and she has returned to the office again the latter part of May and the latter part of June and her general condition is excellent. She considers the results eminently satisfactory.

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Dr. A. S. v. Mansfelde, Ashland, Honorary Chairman	
Dr. B. B. Davis, Omaha, Chairman	1929
Dr. Czar C. Johnson, Lincoln	1928
Dr. R. B. Adams, Lincoln, Secretary	1927

Note: In case of suit notify secretary at once.

MEDICAL PHASES OF THE INSURANCE BUSINESS

Probably not all physicians entering practice are aware that the insurance business may mean something to them, or that it holds out possibilities in a professional and financial way. The writer was in practice several years before the possibilities dawned upon him.

Medical examination for life insurance is a desirable office business and by most companies is well compensated. A few companies writing life insurance, mostly the younger ones, offer a fee hardly compensatory and there are several companies that gauge the fee by the amount of insurance applied for. A somewhat concerted effort made by the organized medical profession some years ago resulted in a uniform fee of $5.00 becoming standard with most companies. Cooperative or assessment insurance associations have become quite numerous and very popular within recent years and particularly in Nebraska, one of whose citizens has been for more than a score of years head of a nationally known organization and the headquarters of at least two others almost equally well known are within this state. These organizations cater to the popular demand for cheap protection for the family in case of the insured's death. The assessments are low—and this is the compelling thing about assessment insurance—and the fees paid for medical examination from $1.00 to $1.50 are not compensatory. It is pretty certain in the practical application that the examinations are made in accordance with the price paid—whatever may, theoretically, be expected.

Some of the old line insurance companies follow out a policy of dismissing local examiners when they reach the age of sixty or sixty-two years. The wisdom of such a policy may well be questioned in view of the fact that most brain workers are more careful and more judicially inclined in the sixties than in the thirties. What the physician of the sixth decade thinks about this policy of insurance companies, is immaterial and would not make good reading.

The medical examination blanks of the various insurance organizations vary greatly. Some, like those of the New York Life are plain, short and pointed, while those of some other companies of less importance, and all of the assessment associations, are prolix almost to the limit of the medical examiner's endurance. It sometimes seems that the less there is back of an organization the more complicated the examination blank. Many are so finely printed and so little space is given for reply that they are nothing short of artistic monstrosities.

Accident and Health insurance is a very popular business at this time. It is well for physicians to know that this business has some annoyances for the physician. If a policyholder gets hurt or has an illness the surgical or medical report of said injury or illness must be made at the expense of the insured. The insurance company does not in any way protect the surgeon or physician in his bill for service, except in those that specifically agree to pay for medical service. Unless the patient is thoroughly honest, the insurance collected is apt to be used for other purposes than paying for surgical or medical service. One health insurance concern with which the writer came in contact pays but 50% of the sick benefit due patient at the time of illness and the balance when patient recovers or dies. It would be interesting to know on what system of business ethics this procedure rests.

The physician who makes a studied effort to give good service in making insurance examinations will be well repaid for his labor.

PERIODIC HEALTH EXAMINATIONS

During the month of June every member of the Nebraska State Medical Association was furnished with a copy of the pamphlet "Periodic Health Examinations." This pamphlet was created by the American Medical Association after a period of study and preparation extending over several years. Many experts were asked to give their help in the preparation of it and as it was sent to you it contains what is thought to be the best ideas on the subject that are to be had. The American Medical Association, always awake to what is best, decided that due to the trend of modern medicine toward the preservation of health, that the biggest subject before the doctor today is to teach the people how to become healthy and how to keep themselves in good health, and not just take care of the sick with very little thought as to the future health of the patient or of how to prevent becoming sick. In other words prevention is the big subject today on which the laity should be educated, and this is a matter of education and the doctor must from now on more than in the past even, be a teacher. After much study the American Medical Association decided that the best way to accomplish this was for the family doctor to teach his community the need of periodic health examinations, as a foundation to work from, and from this go forward with all possible ideas as to how the individual can keep himself healthy. This of course, in a large part deals with the daily living and food habits of the individual—something the doctor is prone to neglect.

The examination blank was devised as a good standard for the doctor to use, modifying it as he believed it would suit his people or practice best. The blank is contained in the pamphlet sent to all members.

At the present time so far as the writer is able to learn, very few of our members have taken this suggestion of the American Medical Association to heart and very few are fitting themselves into this program. This is a big question, a vital one, and a necessary one. It is not going to drop out as a fad, but will become bigger all the time. In fact, from now on the doctor will have to give part of his time to the teaching of health if he is going to keep pace with progress in medicine. Familiarize yourself with the contents of the pamphlet. Begin your work along this line at once. Only by this can we accomplish our aim and only by such things can we occupy our proper place in society.

—R. B. Adams, Secretary.

RECENT ENGLISH OPINION OF CANCER

We are indebted to George A. Soper, Ph. D., Managing Director of the American Society for the Control of Cancer, for a synopsis of a collection of lectures on Cancer delivered by eminent Englishmen under the auspices of the Fellowship of Medicine and Post-Graduate Medical Association.

In the foreword of this report Dr. Soper refers to the many agencies at work in the effort to control the ravages of cancer; such agencies as national societies and research institutes. He opines that surgical technique "has developed to a high point of excellence; that radium and the x-rays have been introduced for the cure and palliation of cancer; that the theory of irritation as a causative factor in the origin of cancer has been developed" and that the lay public are being taught the early signs of cancer. Thousands of books and pamphlets are prepared and distributed by the American Society for the Control of Cancer in the effort to bring about cooperation between the profession and the lay public. Sir Thomas Horder wrote on *Medical Aspects of Cancer*. He takes exception to the teachings of certain surgeons and radiologists who would have it that cancer of the stomach is the outgrowth of gastric dyspepsia, whether associated with ulcer or not. He says "this doctrine is not born out by facts either of clinical medicine or of morbid anatomy" and protests that such teaching is vicious because it is not in accordance with fact and because it is very alarming to patients who are led to believe that "their indigestion is a precancerous condition."

Sir Horder further condemns similar teachings in respect to intestinal cancer. He holds that intestinal stasis, constipation and colonic dyspepsia are not forerunners of cancer of the bowel; that the evidence is all to the contrary and finds that patients who give no such history are more subject to colonic growths. "The palliative value of irradiation" says Sir Horder, "in the hands of an expert are very great. It is possible to mark a steady change in the course of cancerous diseases as the result of the radiologists' efforts and the outlook of sufferers from the dreaded scourge was never so hopeful as now. That many cancer patients live longer and live less painfully than ever before is very largely the result of radio-active therapeutics."

The subject of *Cancer of the Stomach* was also discussed by Herbert J. Paterson. He affirmed that a palpable tumor is not an early sign of cancer of the stomach; that an exploratory incision should be made before a tumor can be felt but the presence of a palpable tumor does not of necessity bespeak inoperability. Inasmuch as the finding of a tumor mass may be the first evidence of the disease, in the absence of all clinical symptoms it becomes imperative to make careful and timely physical examinations of the stomach disorders. The author says he is convinced that many cases of cancer of the stomach are overlooked because the patient is made to take on weight under dieting and rest. Dr. Paterson expressed the belief that more than half the cases of cancer of the stomach can be recognized in time to warrant radical surgical treatment. In his own experience resection has been possible in about 15 per cent of all cases. He lays down the following rule of procedure in the management of these cases: "When a patient past middle life complains of persistent stomach trouble; especially with an onset more or less abrupt and without apparent cause, we may justly suspect cancer. If in spite of two or three weeks treatment there is no improvement, if we find progressive diminution of the gastric acidity and digestive power, or any other of the special signs to which I have alluded, suspicion becomes probability, and exploration should be delayed no longer."

W. Sampson Handley, in his lecture on *The Early Diagnosis of Cancer of the Breast* said that a grave responsibility attaches to the surgeon who advises that an operation is not necessary in chronic mastitis inasmuch as in his opinion chronic mastitis is a precancerous lesion. Such cases should be seen at intervals of three months with the eyes wide open for the earliest signs of malignancy. "A wise practitioner," says the author, "will share the responsibility with a consultant." In watching such a case the signs which will call for operative interference are deviation of the nipple and "retraction of the orifice of the duct corresponding to the mastitic induration in a case of chronic mastitis."

Victor Bonney presented the subject of *Cancer of the Uterus.* He expressed his belief that cancer of the cervix is practically always preceded by endocervicitis and lacerations. Bonney is an advocate of the radical operation for cancer of the cervix. He admits that the x-rays and radium have cured an occasional case and may be helpful in retarding the growth. He declared that radium had a poor record in England, not alone in the treatment of cancer of the uterus, but in the treatment of cancer wherever situated and closes his discussion with the statement—"I am sorry to be such a pessimist on methods of treatment for whose success all of us so longed and hoped, but it is of no use blinding ourselves to the hard fact that as methods of cure they are disappointments, and even as means of palliation they leave much to be desired. The time for rejoicing is not yet."

In determining the time of operability of cancer of the cervix, Bonney says that in symptoms of three months standing the growth is certainly removable; probably removable with symptoms extending over a period of six months and possibly removable when the symptoms have endured for a period of nine months. But where a period of twelve months have elapsed the growth is certainly not removable.

—Palmer Findley.

SERVICE: COMPENSATION

What is the chief function of the medical profession? Is it altruistic? Is it commercial? Is the profession less altruistic and more commercial than in the past generation? If the latter, what influences have caused the change? Has the financial success of a few members of the profession in this generation incited in the minds of the younger members the ideal of wealth rather than the ideal of service? Have those who have attained by their ability great possessions conferred as great a boon on humanity as have those patient workers in our laboratories in discovering the cause and prevention of disease? Consider the list from Pasteur and Koch on down the line to the Dicks and Rosenow. Was not the actuating motive in this group the search for truth? Was not the service large, the compensation small and the recompense in satisfaction large? Does the lay public have as high a respect for physicians and as much confidence in their integrity and personal interest in their patients as in the past? Has the passing of the family physician in our larger cities and increased number of specialists lessened the interest of the profession in the physical, mental and financial welfare of the public? Is the undue tendency of our recent graduates to get into some special line of work rather than to enter general family practice a good or a bad sign? Are there any compensations and rewards in family practice aside from small financial recompense? Are the above questions worthy of consideration? In answer to the last question I can frankly state the seven years of country practice in the village of Woodhull, Ill., were to me the happiest and most useful years of my life. In those years I learned much of the intimate home life of the people, of their worries and trials and ambitions. My mistakes quite completely inhibited my innate sense of pride. During those years I formed helpful friendships that have endured for more than 40 years.

I believe there is no question that changed economic conditions have materially altered the young physician's outlook and from no fault on his part.

First—The long course of study both preliminary and medical, involving a heavy monetary expense with the necessarily increased age, make it imperative that the recent graduate give serious thought to the money question. No one can live on faith alone.

Second—In addition to the long and expensive course of education is the high cost of living; including rents, autos, etc., and with many young graduates wife and family.

Third—After all the time and money expended the physician finds his sharpest competition from cults, whose members have spent very little in time and money in preparation.

These reasons in my judgment compel the young physician to think seriously about his income and naturally tend to cloud or obscure his ideals of altruism and service.

Fees must be commensurate with the cost of the service. In all other professions and especially in the line of skilled labor wages have increased enormously. The physician is, therefore, justly entitled to larger fees. This is just, not mercenary. Let the young physician fix as his ideal the thought of service, with a personal interest in his patients as sentient sensitive human beings like unto himself. Then let him require just and prompt compensation for his services.

—H. M. McClanahan.

A METHOD OF DETERMINING DIET AND INSULIN DOSAGE

In treating diabetes, it is desirable to have some systematic method of approach in figuring diet and insulin dosage for a new patient. The following method has been found effective in saving time and bringing the patient as quickly as possible under accurate management:

1. Determine the patient's Carbohydrate Balance (Tolerance). Keep the patient for three or four days on an accurate standard diet; the usual is 60 gm carbohydrate, 60 gm protein, and 120 gm fat, though this may have to be varied in individual cases. In addition to the carbohydrate content of the diet, 58 per cent of the protein and 10 per cent of the fat, are metabolized as carbohydrate. Call the total carbohydrate intake I;

$$I = C + 0.58P + 0.10F$$

Secure a 24 hour specimen and determine the sugar excretion in grams per twenty-four hours, E. Then,

$$I - E = B$$

in which B is the number of grams of carbohydrate actually metabolized by the patient in 24 hours.

2. Determine the patient's basal metabolism. This should be expressed in terms of calories per 24 hours rather than by the usual method, as a percentage difference from the predicted rate.

3. If the patient is to be sugar-free, then E must be equal to zero. Therefore, I must equal B; in other words, the intake must not exceed the amount that the patient can metabolize. If I can be cut down so that it is equal to B, and still furnishes enough calories to take care of the patient's metabolic requirements, no insulin is required.

Each gram of carbohydrate metabolized produces 4 calories; each gram of fat produces 9 calories. The caloric value of the diet is then,

$$4C + 4P + 9F.$$

If this figure is equal to that of the basal metabolism expressed in calories per 24 hours, if I=B, and with the patient quiet in bed, no insulin is required.

4. Suppose the total calories furnished by the diet are less than the basal metabolism, by an amount D. That means that the patient cannot eat enough food to support his body needs, and at the same time remain sugar free. In fact, he probably cannot support his body needs, regardless of his glycosuria. Therefore, enough insulin must be used to metabolize sufficient carbohydrate to furnish the deficiency in calories. D

represents the number of calories that the insulin must help us get.

D calories is equivalent to D/4 grams of carbohydrate. As each unit of insulin metabolizes on the average 2 grams of carbohydrate, we shall need D/(4x2) units of insulin.

This works out clinically only in approximation. It is necessary that it be checked up and adjusted by subsequent trial and error.

—Miles J. Breuer.

THE LACHRYMO-NASAL CANAL IN LEGAL MEDICINE

Icard (abst. in Zentralblatt f. d. Gesamt. Ophthal., June 29, 26, p. 672) points out that the examination of this canal in some cases of death in new-borns is of decided importance. Although fully formed by the eighth to ninth month, it is plugged with a mixture of epithelial cells and thickened mucus for two to three days after birth; hence when it is certain that the child has lived at all after birth, if the canal is found to be plugged, this indicates that it can not have lived longer than three to four days. On the other hand, if the canal is found to be patent, the indication is that the child must have lived at least two to three days. This may be of importance in suspected child-murder. Where the babe is killed by the mother this in the great majority of cases is done immediately after birth. If the canal is found to be patent, the child must have lived two to three days, which would speak against infanticide by the mother. This, however, is subject to the qualification that if the child has lived only a few minutes, as shown by other conditions, and the canal is nevertheless patent, the child has probably been killed by some form of suffocation (smothering, drowning, burying), because from the forced respiration attending such a death the plug in the canal can be forced or sucked out prematurely.

—H. G.

EDITORIAL PARAGRAPHS

A dozen state medical associations have full time executive secretaries.

The age of the nude female is about due; we are almost down to the fig leaf now.

One of the best places to get automobile parts nowadays is at the railroad crossing.

It will be regretted by the reader that the Goiter articles published in this number lack presentation of the surgical viewpoint to make a symposium.

The omentum is totally incapable of intrinsic movement according to studies made by Flory, Walker and Carleton as published in the *Journal of Pathology and Bacteriology*.

The Nebraska American Legion and Auxiliary in annual convention by resolution demanded of the federal government a veterans' hospital for Nebraska. And Nebraska ought to have one.

That a discussion of medical ethics in a society meeting should result in a personal assault with great bodily harm will be regretted by every right thinking physician. Whither are we drifting?

Because the state licensing law does not require a year's internship after graduation, the rule by which this has been enforced by the Nebraska University. College of Medicine, has been rescinded.

Whether a physician can be held liable to a practical nurse and housekeeper, who at his request accepts service in a home in which a contagious disease exists, is to be determined by the courts of this state.

Some Nebraska medical authors furnish such abominably constructed manuscripts as to drive the editor almost frantic in an endeavor to make the articles appear presentable. If the surgical and other work is no more systematic their clientele is to be pitied.

The *Dearborn Independent* is authority for the statement that as a result of the World War, 119,568 men and women in the armed forces of the United States, lost their lives. 36,815 were killed in action; 13,536 died of wounds and 68,941 died of diseases and other causes.

It is interesting to note that during the hysteria about a bread and water diet, the editor of the Journal of the American Medical Association came out in a popular article saying in effect that a bread and water diet, depending on the composition of the bread, may not be harmful at all.

"First Aid to the Physician," the true story of the American Medical Association, by Dr. Morris Fishbein, Editor, J. A. M. A., published in the August, 1926, Century Magazine is a very lucid exposition of the aims of organized scientific medicine in the United States and should do much to convince the lay mind that a "medical monopoly" does not exist.

SOME MISCONCEPTIONS REGARDING RELATION OF HEREDITY TO CANCER AND OTHER DISEASES

Maud Slye, Chicago (Journal A. M. A., May 22, 1926), says that a very serious handicap is met in the effort to make known the facts of heredity and to place these facts in their proper relation to other biologic data, for the purpose of establishing the exact value of heredity among the biologic influences, so that we may have a firm basis for further departure, and not be forced continually to replow the same ground. This is particularly true in attempting to establish the relation of heredity to disease. This serious handicap consists in what may well be called fundamentalism in the scientific field; that is, preconceived ideas and prejudices, not based on scientific research, but instead on general impression, hearsay evidence and the like, handed on from one to another and thus established in general opinion. Scientific terms, frequently misunderstood and misused by clinicians and research workers, form a strong background of entrenchment to prejudice and preconceived opinion. One of these terms is "eugenics," which has been used to mean anything from personal and social hygiene, and childbirth conditions, prenatal and postnatal, through to the real facts of heredity. Slye stresses the absurdity of attempting to settle the question of the inheritability of any character whatever by the statistical method. For while the statistician, endeavoring to settle the question of the inheritability of any disease, can perhaps get the death facts and the life facts of both parents and possibly of the four grandparents, and perhaps eventually even of all the great grandparents, he cannot discover which of these individuals are purebreeding resistant to cancer (or any other disease), and which are hybrid cancer-resistant, for there is no way to discover this fact except by the experimental method of selective breeding and analysis with the right number and the right kind of hybrid crosses. Only by the experimental analytic method can the question of the inheritability of any character whatever be settled definitely. Prevailing monogamy in any species makes analyses very difficult. The method used in the experimental production of unions may be destroying the very tendency it attempts to test. Therefore, the question of the inheritability of cancer resistance cannot be settled by determining whether cancer can or cannot be experimentally produced by any given method in any given set of subjects, since there is not and cannot be any complete biologic control in the field of heredity in such studies, nor any certainty that it is only the inheritability of the tendency to cancer resistance which is being tested in such experimentation. The great difficulty in the study of human heredity is that man is so long lived an animal that no one person can collect accurate data for three generations. But this does not mean that there are no heredity facts unbrokenly expressing themselves in the human species just as they do in other animals of a shorter life span, whose exact records are being taken. Slye suggests to establish permanent records of periodic examinations of each living individual and permanent recorded accurate necropsy findings of all dead, in three generations, as this would yield valuable scientific data. These data would undoubtedly include matings of double cancerous parentage, matings of double noncancerous parentage, matings of noncancer with hybrid carrier, and matings of cancer with hybrid carrier. These are exactly the matings by which inheritability of cancer in short lived animals is tested, and such records, if accurately taken and correctly interpreted, would furnish an equally exact test for the human species. Recessive characters, such as the tendencies to albinism, to blue eyes and to cancer, which are submerged in hybrid carriers wearing the dominant appearance, can be made to appear suddenly within a strain, by the mating of two hybrid carriers. It is thus shown to be possible to convert, by two matings, a strain heretofore always wearing 100 per cent of the dominant appearance into a strain expressing 100 per cent of the recessive. Slye insists that as in any other field of scientific endeavor, all the facts in the field of cancer research must be consistent each with every other. If it should eventually be possible to produce experimental cancer in every subject, this would not disprove the inheritability of cancer any more than the fact of the inheritability of cancer proves that it must be impossible to produce cancer experimentally in every subject. No biologist has ever made such an assertion. There must instead be a third fact that harmonizes these two. This third fact is already evident in the highly destructive nature of the experimental agents used, which may well destroy the cancer resistant mechanism or any other bodily mechanism. Spontaneous cancers do not arise in every individual, either in the human species or in lower animals even under identical conditions; this is a demonstration that there is a cancer resistant mechanism present in some members of every species. No amount of experimentally produced tumor can offset this fact. The explanation of these tumors will have to harmonize with it. Again, if cancer should eventually be demonstrated to be a specific infection, this would not disprove its inheritability any more than the fact that the inheritability of cancer definitely proves that cancer is not a specific infection. There must be a third fact that would harmonize these two. That third fact is readily discerned even now in the hereditary basis of every organic response to every type of stimulation or irritation, whether it is a specific germ or anything else, although there is variation in the types of inheritance behavior, and apparently these variations have a bearing on the etiology of various diseases. The third most frequent objection to the inheritability of cancer, namely, that although proved for lower mammals it does not apply to man, is answered by the fact of evolution. Similar tissues derived in the course of evolution from the same ancestry must respond in the same way as the ancestral tissues to the same types of stimulation. Only so could an unbroken series of organisms evolve each from the other. The scientific method of procedure for those who cannot accept the evolutionary evidence is not categorically to deny what they cannot disprove and what has indisputably been found true by many workers, but rather to begin the measures which inevitably must produce scientific data for the investigation of heredity in man.

NOTES ABOUT THE NEBRASKA UNIVERSITY COLLEGE OF MEDICINE

The University of Nebraska College of Medicine opened September 20th, with a total enrollment of 284 students. Registration was held Friday and Saturday, September 17th and 18th. The enrollment in classes is as follows: Freshmen 90, Sophomores 73, Juniors 66, Seniors 52, Specials 3. The number of men students enrolled is 269 and the number of women students 16. This is an unusually large enrollment and taxes the capacity of the present laboratory buildings and University Hospital. Very few medical schools in the country accommodate this number of students without a much larger physical plant. This represents a high degree of service to the state for money expended. The cost to the state per student, including maintenance of the University Hospital last year, was $583.00. This is an exceedingly low figure compared to other medical schools where the average cost is nine hundred to one thousand dollars. The cost of maintaining the University Hospital might very properly be charged to the service rendered to its patients rather than to the Medical School. If this were subtracted from the total cost, it leaves the very low cost per student of $202.00.

The University of Nebraska College of Medicine ranks with the best in the country. The new wing of the University Hospital now under construction will provide additional beds, bringing the total capacity of the hospital to 250 beds for clinical teaching in all branches of Medicine. This will give Nebraska ideal clinical teaching facilities and the entire school will represent a standard of service and economy not equal anywhere in the country.

J. Jay Keegan, Dean.

TRAVEL STUDY CLUB OF AMERICAN PHYSICIANS

At the completion of its recent European Study Tour, the Travel Study Club of American Physicians elected Dr. Fred H. Albee of New York as President, Drs. Edward B. Heckel of Pittsburgh and John P. Lord of Omaha as vice-presidents, and Dr. Richard Kovacs of New York as secretary.

Plans are being prepared for the next study trip, including the Central European countries: Germany, Austria, Czechoslovakia, Hungary and Italy.

THE SOCIETIES

The **Eighth Councilor District and Holt County Medical Societies** held the fall meeting at Ainsworth, October 5, under the presidency of Dr. Chas. H. Root. The Ainsworth Commercial club tendered a dinner to the visiting physicians.

Dr. George H. Griot, Chadron, read a paper or "Cosmetic Surgery"; Dr. L. D. McGuire, Omaha, on "Management of Goiter Cases"; Dr. W. J. Douglass, Atkinson, on "Periodic Examination of Apparently Healthy Persons"; and Dr. W. O. Colburn, Lincoln, on "Diarrhoea, of Infancy". A clinic was held at the Brown County hospital in the forenoon.

An Inter-Councilor District Medical Society (Third and Seventh) meeting occurred at Beatrice, September 29. The meeting was attended by nearly 100 physicians.

Dr. J. S. Welch, Lincoln, spoke on "Head Injuries"; Dr. J. M. Mayhew, Lincoln, on "Treatment of Diseases of the Chest"; Dr. Adolph Sachs, Omaha, "Cardiac Therapy"; Dr. Victor E. Levine, Omaha, "Treatment of Diabetic Coma"; Dr. B. B. Davis, Omaha, "The Modern Management of Goiter"; Dr. A. R. Mitchell, Lincoln, and Dr. Roy Fouts, Omaha, also spoke. Dr. Jabez N. Jackson, president-elect of the American Medical Association wired his regrets.

The **Omaha-Douglas County Medical Society** opened the year's work with initial programs that foretell the practical character of the work planned. The first and second meetings featured the following: "Some Hygienic Points Related to Climate in the Prevention and Treatment of Acute and Chronic Respiratory Diseases", by Dr. Lynn T. Hall; "Causes of Herpes" by Dr. Sanford Gifford; "Presentation of a Case of Meningococcic Meningitis" by Drs. E. E. Simmons and A. E. Bennett; "Medical Pitfalls — Obstetrical, Medical, Surgical", by Drs. Palmer Findley, W. O. Bridges and J. E. Summers.

The **Dawson County Medical Society** in annual meeting at Cozad, elected Dr. E. C. Stevenson, Gothenburg, president; Dr. L. H. Fochtmen, Cozad, vice-president; Dr. William Johnson, Gothenburg, secretary-treasurer; and Dr. F. J. Rosenburg, Lexington, delegate.

The **Otoe County Medical Society** meeting at Nebraska City, September 13, was attended by about 35 physicians. Dr. A. J. Brown, Omaha, gave a lecture on "Infections of the Hand and Wrist"; Dr. J. P. Lord, Omaha, spoke on "Corrective Surgery of the Hand"; Dr. A. R. Kintner, Nehawka, gave a paper on sympathetic nerve control of blood vessels. A luncheon was served after the meeting.

At the meeting of October 4, at Nebraska City, the program centered about dental infections and anomalies. Dr. E. H. Harms, Omaha; Dr. P. G. Ludwig, Lincoln; and Dr. Guy Souders, Nebraska City, put on the program.

Before the **Furnas County Medical Society** at Beaver City, October 6, Dr. J. E. M. Thomson, Lincoln, gave an address, illustrated by moving pictures, on "Orthopedic Correction of Deformities with Results"; Mrs. Ehrenfeldt of St. Louis gave a talk on the cooperation of the medical profession and the Red Cross; Dr. J. N. Campbell, Stamford, gave "My Hobbies" and Mrs. R. D. Green, Beaver City, recited an original rhyme giving her version of the troubles of the doctors' wives.

HUMAN INTEREST TALES

Dr. A. P. Fitzsimmons, Tecumseh, is a candidate for state senator.

Dr. Harold Lammers, Hartington boy, has located in New York City.

Dr. Philip Romonek, and Miss Leah Lipsey, Omaha, were married recently.

Dr. F. G. Folken, Albert Lea, Minn., visited his father at Columbus recently.

Dr. E. W. Shearburn, formerly of Haddam, Kansas, has located at Fairbury, Nebr.

Dr. R. R. Reed, McCook, submitted to an operation in an Omaha hospital in September.

Dr. D. G. Golding, former Nebraska physician is now located at Santa Monica, Calif.

Dr. Alfred Maillard, recently of St. Elizabeth's hospital, Lincoln, has located at Osmond.

Drs. E. E. Rider and W. C. Becker, Lincoln, have returned from a season's study abroad.

Dr. A. A. Conrad, Crete, spent a month in Boston taking special work in internal medicine.

Dr. Charles W. Harms, Lincoln, and Miss Velma Rains, Wahoo, were married September 4.

Dr. Fred Matheny, Lincoln, took a postgraduate course in pediatrics in Chicago in August.

Dr. Oliver C. Nickum, Seward, has returned from four months' study of pediatrics at Vienna.

Dr. C. O. Robinson, Beatrice, has been ill and a patient at an Omaha hospital for some time.

Dr. and Mrs. Irving C. Wood, Omaha, have returned from a summer's outing at Wall Lake, Iowa.

Dr. George W. Covey, Lincoln, announces his new offices at suite 322, First National Bank building.

Dr. J. A. Peters was ill in an Omaha hospital for some time, but is again at his home in Springfield.

Dr. J. F. Lauvetz, Wahoo, has returned from Chicago where he took some special work in pediatrics.

Dr. J. Willard Snyder, Papilion, and Miss Rosella Gibbons, Greely, were married in Omaha, September 9.

Dr. Margaret Hammond, Lincoln, took postgraduate work in a Chicago children's sanitarium during the summer.

The marriage of Dr. Stanley P. Wallin of Snyder and Miss Virginia Franklin of Magnolia, Iowa, is announced.

Dr. and Mrs. F. M. Andrus, Lincoln, have returned from a ten weeks' tour of Europe with a party of surgeons.

Dr. H. A. Taylor, University Place, attended the convention of the Phi Kappa Tau at West Baden, Indiana, in September.

The license to practice medicine of Dr. William F. Race, Havelock, has been revoked because of addiction to alcohol and narcotics.

"Dr." Leighton Bonner, was convicted at Hastings for practicing without a license, fined $475.00 and $125.00 costs and was committed to jail.

Dr. Edwin C. Sorensen, Dannebrog product, erstwhile practitioner at Ravenna, is now a part of the Army Medical Center at Washington, D. C.

Dr. F. A. Wells, formerly of Axtell, but more recently in the army medical corps, now stationed at Kansas City, Mo., visited in Nebraska recently.

Dr. C. A. Lutgen, Auburn, returning from a professional call, was the victim of a vicious assault by three young men presumably under the influence of liquor.

Dr. Lucien Stark, erstwhile Hartington practitioner, more recently of Florida and Asheville, N. C., has returned to "his own, his native land" and located at Norfolk.

Dr. Richard Lord, once a practitioner at Louisville, Nebr., now a resident of Waterloo, Iowa, recently visited the scene of his early career after an absence of 33 years.

Dr. William Windle Davis and family, Omaha, enjoyed a six weeks' auto trip through the Yellowstone and Glacier National parks and the Canadian Rockies during early fall.

Dr. G. M. White, who on the death of Dr. W. S. Fast, became acting superintendent of the Hastings State Hospital, has been appointed superintendent of the institution by the state board of control.

Dr. F. Simon, former practitioner of Oakland, but of recent years connected with insurance companies in Omaha and St. Louis, has returned to Oakland where he will limit his work to office practice.

Dr. James F. McDonald, Creighton University, College of Medicine faculty, gave an address at the Mayo Clinic October 7, dealing with researches on uric acid conducted at the "Creighton" during the recent past.

"Dr. Micheal Ubs," Madison, Nebr., illiterate "Indian herb doctor" was fined $300 and costs in the Madison county courts in October, for conducting a hospital and practicing without a license. Two persons had died at his "horspickle."

Dr. Leroy Crummer who with his wife has spent the summer in Europe gave an address on the history of medicine before the Royal Society of London recently. An English edition of Dr. Crummer's book on "Heart Disease" has just come off the press.

Dr. J. P. Lord, Omaha orthopedist, attended a series of meetings during the month of October, including the Railway Surgeons' association, at Minneapolis, the Western Surgical association at Duluth, the Inter-State Postgraduate Assembly at Cleveland and the Clinical Congress of the American College of Surgeons at Montreal.

NECROLOGY

Samuel F. Sanders, Holdrege, Nebr.; Missouri Medical College, 1872, also said to have been a graduate of College of Physicians and Surgeons, Keokuk, 1868, and of Rush Medical College, 1881; beloved practitioner and progressive citizen of Holdrege, Nebr., since 1888; member, Nebraska State Medical Association for many years and sometime vice president; an attendant of most of the annual meetings of the American Medical Association during his active years; a veteran of the civil war and sole survivor of the gunboat "Sultana" blown up by the rebels on the Mississippi river; prisoner of war for many months in southern prison camps; commander of the Nebraska G. A. R. two years ago; prominent Mason; prominent Presbyterian; died September 9, 1926, aged 81 years.

H. E. McKenzie, Sioux City, Iowa; medical education record unavailable; physician in Cedar county, and in northeast Nebraska, locating at St. James, in 1872, where he continued in practice until about 1912; practitioner of the old school who ministered unstintingly, by day and by night, in sunshine and in storm, to the sick and suffering; died, October 6, 1926, aged 87 years.

J. H. Hitchcock, Havelock, Nebr.; sometime student in Rush Medical College; practitioner in Saline county, Nebr., for fifteen years, from 1874; not in practice for many years; president, First National Bank of Havelock, died October 7, 1926, aged 76 years.

A. A. Holtman, Omaha; Bennett Medical College, Chicago, 1907; well known practitioner of Omaha since 1907; member, Nebraska State Medical Association; well known Scottish Rite Mason; died suddenly, October 10, 1926, aged, 57 years.

BOOKS RECEIVED

PRACTICE OF PHYSIOTHERAPY by C. M. Sampson, M. D. Cloth, 608 pages with 146 illustrations. 8 mo. Price $10.00. C. V. Mosby Co., St. Louis, 1926.

GOITER AND OTHER DISEASES OF THE THYROID GLAND by Arnold S. Jackson, M. D. Cloth. 353 pages with 151 illustrations. 10 mo. Price $10.00. Paul B. Hoeber, Inc. New York, 1926.

BIRTH CONTROL AND THE STATE by C. P. Blacker, M. C., M. A., M. R. C. S., L. R. C. P. Cloth. 87 pages. 8 mo. Price $1.00. E. P. Dutton & Co. 1926.

ELECTROTHERMIC METHODS IN NEOPLASTIC DISEASES by J. Douglas Morgan, B. A., M. D. Cloth. 172 pages. 8 mo. $2.50 net price. F. A. Davis Co., publishers. 1926.

CANNULA IMPLANTS AND REVIEW OF IMPLANTATION TECHNICS IN ASTHETIC SURGERY by Chas. Conrad Miller, M. D. Cloth. 178 pages. 11 illustrations. 10 mo. Price $2.00. The Oak Press, 358 W. Madison St., Chicago, Ill. 1926.

FUNDAMENTALS OF DERMATOLOGY by Alfred Schalek, M. D. Cloth. 228 pages. Illustrated with 54 engravings. 8 mo. Price $3.00. Lea & Febiger, S. Washington Square, Philadelphia. 1926. (Review next month).

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. 3rd Series, Volume 47. Edited by Walter G. Elmer, M. D. Cloth. 844 pages with illustrations. 9 mo. Philadelphia, 1925.

SURGICAL TREATMENT OF GOITER by Willard Bartlett, A. B., A. M., M. D., D. Sc., F. A. C. S. Cloth. 358 pages with illustrations. 8 mo. Price $8.50. C. V. Mosby Company, St. Louis. 1926.

EPHEDRINE

The Council on Pharmacy and Chemistry publishes a report on ephedrine. Ephedrine is an alkaloid first obtained in 1887. Chemically, it is closely related to epinephrine. Ephedrine hydrochloride and ephedrine sulphate are soluble in water. Ephedrine is claimed to produce effects similar to epinephrine. Its most important effects thus far reported consist in a rather lasting rise of blood pressure on intravenous or intramuscular injection. Clinically, promising results have been reported from the use of ephedrine, especially in asthma and for shrinking the turbinated bodies. The clinical trials which have been reported in this country have been carried out with ephedrine sulphate made in the Peking Union Medical College. The Council is informed that the Abbott Laboratories will shortly be in a position to supply a salt of ephedrine obtained from this source. Burroughs, Wellcome & Co., London, supply ephedrine hydrochloride for experimental purposes and have supplied the Council with a specimen of the product and the tests and standards used for its control. Eli Lilly & Co. has announced that it is marketing ephedrine sulphate, containing a small amount of pseudo-ephedrine, under the name "Fedrin". The Council is considering the question of recognizing the proprietary name for this product, and the evidence for its value and control. The A. M. A. Chemical Laboratory has taken up the establishment of standards for ephedrine hydrochloride and ephedrine sulphate. The Council has postponed the acceptance of ephedrine or its salts for New and Nonofficial Remedies to await confirmatory clinical evidence, and until acceptable brands of the drug are available. (Jour. A. M. A., Sept. 11, 1926, p. 849).

SEPARATE GRADES

The increasing number of accidents to tourists at highway grade crossings has led to the adoption of a policy looking to the elimination of such dangerous crossings wherever practicable on federal aid roads. The policy, which has met with the general support of the states, is that all existing grade crossings on the federal aid highway system shall be classified for priority of elimination by agreement between the bureau of public roads and the state highway department, and that the improvements shall be carried out as rapidly as practicable.—Ex.

A STANDARD FOR PITUITARY EXTRACT

One of the pleasing features of the Tenth Revision of the U. S. Pharmacopoeia is the inclusion therein of a definite standard of activity for pituitary extract. Inasmuch as pituitary extract is best known as an oxytocic, it is the effect of the extract upon the uterus of a virgin guinea-pig that constitutes the official test. Some manufacturers, however, among them Parke, Davis & Co., apply the presser or blood-pressure-raising test as well, since pituitrin (pituitary extract, P. D. & Co.) is administered for its effect upon the arterial system in hemorrhage and other conditions, and for its regulating effect upon both the intestinal musculature and the musculature of the bladder.

It is impossible for the physician to judge of the activity of a pituitary preparation by physical examination of it. Manufacturing methods have made it possible to produce pituitary extracts not only far below the standard, but far above it; hence the urgent necessity of the pharmacopoeial requirement in the interest of definite dosage.

In this case, however, as in many others, the physician is dependent upon the manufacturer not only because he himself has none but clinical means of testing the activity of the product, but because the products of different houses vary, and possibly also the product of the same house at different times. A manufacturing concern of recognized scientific standing is really the only guaranty of quality that the physician has.

THE FEMALE SEX HORMONE AND GESTATIONAL GLAND

Robert T. Frank and R. G. Gustavson, Denver (Journal A. M. A., June 6, 1925), summarize their most important conclusions thus: Each sex cycle is preparatory to gestation, the normal sex cycle being the fertile one that leads uninterruptedly to parturition and lactation. An abortive cycle occurs when pregnancy fails to develop. Soon after ovulation the anabolic phase ceases, a catabolic period succeeding it. In most forms the catabolic period is involutionary. In the primates this period is destructive (menstruation). The endocrine factors producing the cyclic changes are successively supplied by the follicle, corpus lutem and placenta. To emphasize this continuity, the authors propose the name of the gestational gland for this triad (follicle, corpus lutem and placenta). By substitution (subcutaneous injection) with lipoid extracts of these glands (follicle fluid, corpus lutem, placenta) they have obtained: In female castrates or in immature animals alike: (a) premature sex development (pubertas praecox); (b) hyperplasia of the tubular system and mammae, especially marked in rabbits. In castrates: (c) in rats, vaginal spreads characteristic of estrus, together with hyperplasia of the duct system; (d) in rats, treated with potent extracts, typical estrual contractions of the uterus suspended in Locke's fluid. The active substance has been sufficiently concentrated to produce physiologic results in a total dosage of 2.25 mg. (0.00225 gm.). The sex hormone is a specific substance elaborated by the gestational gland, taken up by the lymph and blood stream and selectively utilized only by Muller's tract and the mammary glands. The chemistry of the sex hormone is not fully determined.

An eastern restaurant has the following printed on a card on every table:

"No Gratuities. It is an inflexible rule of this restaurant that no gratuities or "tips" may be accepted by table attendants. Patrons are urgently requested to co-operate with us in the observance of this rule."

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PERSONAL EXPERIENCE WITH ETHYLENE GAS IN SURGICAL ANESTHESIA*

J. W. DUNCAN, M. D.,
Omaha, Nebraska.

The ideal anesthetic is one which abolishes pain without abolishing consciousness and which does this without danger to life. Such an anesthetic has not yet, of course, been found. Many agencies for the production of surgical anesthesia have been tried and discarded. None of the newer agents, which are chiefly gaseous, has displaced ether. None probably will. Some of them can be used advantageously in conjunction with ether, or in its stead, in some cases. Until recently nitrous oxide has been the gas used most often for the production of surgical anesthesia. We believe, after a reasonable amount of experience, ethylene gas offers many advantages over nitrous oxide, that it can in many more cases entirely displace ether than can nitrous oxide and that it has a synergistic action with ether not found in nitrous oxide.

The following impressions are those of a general surgeon after the use of ethylene gas, either alone or in conjunction with ether in a series of 164 cases. In this series there were, among other cases, 4 prostatectomies, 2 diabetic carbuncles, 3 painful stumps, 4 breast amputations, one vaginal hysterotomy, 4 thyroidectomies, 2 exophthalmic, 3 bone grafts, 2 brain abscesses, one empyema, one loose cartilage in knee, 3 hysterectomies, 5 cystoscopies, 6 open reductions of fracture, 20 herniotomies, 8 cholecystectomies, 6 pelvic examinations, 6 laparotomies for inflammatory pelvic disease, 2 nephrectomies, 4 hemorrhoid.ectomies There were any number of other surgical procedures among them, laparotomies, reduction of dislocations, etc. The cases do not embrace all the work done within a given period. They were not, however, selected. They represent, as will be noted, the variety of cases usually found on a fairly active general surgical service.

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*Read before annual meeting Nebraska State Medical Association, Omaha, May 11-13, 1926.

Ethylene or oleifant gas is found in ordinary illuminating gas to the extent of about 4%. Commercially as acetylene gas it has been used in a more or less pure form for lighting, heating, welding, etc. It was first carefully studied by Luckhardt and Carter for anesthetic purposes, it having been noticed that flowers would apparently go to sleep when placed in a greenhouse containing illuminating gas. It was subsequently determined that this was due to the ethylene in the gas. Before being presented to the profession for anesthetic purposes Luckhardt carefully investigated the gas both experimentally and clinically and in August, 1922, the work was completed. In the first part of 1923 report was made upon about 100 cases in which the gas was used in the Presbyterian Hospital in Chicago.

Ethylene is prepared by withdrawing one molecule of water from alcohol, the chemical formula being $C_4 H_4$. It is supplied in tanks under compression in the same manner as is nitrous oxide. It can be used in any machine devised for nitrous oxide administration with little, if any, alteration in the machine. I use it in a Heidbrink apparatus, the only change necessary being a different tank pressure regulator on the ethylene tank. Additionally I have provided a metal tubing connecting the tank with the head of the machine, a precaution, the reason for which will later be mentioned. The gas costs approximately the same as does nitrous oxide. Careful computation indicates that, given in the usual proportion with oxygen, the anesthetic costs between $2.50 and $3.00 per hour. The cases upon which this report is based were, with three or four exceptions, all operated upon personally. The anesthetics were all given by the same anesthetist at St. Joseph's hospital in Omaha with the same apparatus. An essential to the accurate and satisfactory administration of any gas anesthesia is that the anesthetist be acquainted with the apparatus and with the operator. Without this any gas anesthesia is entirely sure to be unsatisfactory.

I have, as a rule, given the usual preliminary hypodermic medication consisting of ¼ grain of morphine and 1-150 grain of atropine. A good many surgeons who have used ethylene have said that this preliminary medication is unnecessary. In some emergency cases we have dispensed with it with perfect satisfaction. We have found, however, that in ordinary cases, especially in laparotomies or in nervous subjects the morphine and atropine induce a mental quiet and add in muscular relaxation in a very helpful manner. Since the gas is entirely non-irritating to the mucous membranes it seems probable that the atropine might safely be dispensed with. We have, however, used it in practically all cases because very often a percentage of ether is mixed with the gas and we feel that we are avoiding the excessive mucus in these cases by having supplied the atropine. We believe that in a certain percentage of cases the atropine might advantageously have been dispensed with, for a dryness and harshness of the htroat develops that causes an irritating cough or a suppressed tickle in the throat. We have never in any cases found any evidence of pulmonary irritation following unmixed ethylene and the coughs that have been observed have been thought to be due to the dryness of the throat and bronchial tubes rather than to any other cause. We have never used scopalamine as we believe it has been proved beyond all doubt that the use of this drug combined with any anesthetic agent which produces unconsciousness is dangerous because of its marked respiratory depressing effect.

INDUCTION

When we first begun to use gas anesthesia our apparatus was fitted with both nitrous oxide and ethylene in addition to the oxygen. For a short time nitrous oxide was given almost exclusively because the anesthetist had been trained in the administration of that gas.

Very quickly, however, we found that we mere not using the nitrous oxide and after the first few anesthetics it was dispensed with entirely, the reason being that ethylene induced anesthesia much more easily and much more rapidly without the struggling and excitement and hilarity so often noticed with nitrous oxide. We found, too, that when the patients recovered consciousness they did not complain of the whirling and pounding in their heads and the sense of impending catastrophe so often found with the latter gas. Accurate record was kept of the length of time necessary for the induction of complete anesthesia in all cases. It averaged a few seconds less than three minutes. Our records show that anesthesia was induced rapidly and quietly in 122 cases out of 164, somewhat slow but quietly in nine cases. Nineteen cases were rapid but somewhat noisy. Nineteen cases were slow and noisy. These latter cases were in those in whom some difficulty had been anticipated, chiefly alcoholics or other types of patient excitable or apprehensive. It is interesting to note too that those cases in which the induction was rather slow and noisy had usually no preliminary medication. Inquiry was made in each case following the recovery from the anesthetic as to the reaction during induction. Practically all expressed gratification at the easy manner in which they went to sleep.

ODOR

The odor of the gas is sweetish and somewhat disagreeable until one becomes accustomed to it. Within a short time it is hardly noticeable to the regular operating force. We have repeatedly inquired of the patients following recovery from the anesthetic as to whether or not the odor disturbed them. In practically all cases they have said that after three breaths they had no recollection of any disagreeable smell.

RELAXATION

Relaxation is not as complete as with ether but much more complete than with nitrous oxide. Aside from work in the abdomen practically all surgical procedures can be carried out without the addition of ether. Out of 50 laparotomy cases in this series 35 required the addition of some ether, showing that in practically about 60% it was necessary to add ether. For appendectomies and most pelvic procedures no ether is required. We found in practically all upper abdominal work, especially cholecystectomies, gastro-enterostomies, etc., as well as the deep pelvic work some ether was required. In most cases it was only a very small amount, 30 cc or slightly more. Usually when relaxation has been obtained with ether, and it comes quickly, the surgical procedure can be completed with gas alone. In a few cases we failed utterly to get adequate relaxation without giving straight ether. This happened in our early experience and the percentage of those requiring straight ether has gradually grown smaller. In a great many cases the amount of ether used did not delay the recovery from the anesthetic and practically none had any recollection of having had ether or complained of the taste and the nausea that remains following thorough saturation with ether vapor. We believe, however, that the surgeon who attempts, as a feat, to complete a difficult laparotomy under gas anesthesia when time could be saved and better work done by the administration of the few cc of ether shows poor judgment. Most certainly for the majority of surgeons ethylene does not give sufficient relaxation to satisfactorily complete difficult laparotomies.

COLOR

One of the most satisfying features of ethylene anesthesia is the absence of cyanosis. The color in practically cases remains pink. There are never the evidences of lack of oxygen and teh suffusion and discoloration seen in nitrous oxide. There is no stertor or straining usually. We found early in our experience in those cases in which we tried to deepen the anesthesia or to increase the relaxation by decreasing the amount of oxygen below the usual limits that instead of a cyanosis developing a peculiar ashen gray appearance occurred. We have never seen patients get blue with ethylene as they do with nitrous oxide except in those cases in which there was some obstruction to the air passages. It is important for the person beginning to use ethylene to know that dependence cannot be placed upon cyanosis to indicate danger for it does not develop.

PULSE RATE

We found in practically every case the pulse was somewhat slow following induction of anesthesia. A rate of 120 would commonly drop to 85 or 90 and remain there. It was not of the full and bounding type sometimes found under nitrous oxide anesthesia. It never became fast or got poor except in severe and prolonged operations in which some shock developed.

RESPIRATORY IRRITATION

None of the cases showed any evidence of respiratory irritation. A boy of six with an acute empyema took ethylene very nicely. It was administered to a female of 24 with an acute phthisis for an emergency surgical procedure. During our observation it apparently did not influence the process. There was no unusual cough or fever following recovery from the anesthetic. There is little, if any tendency in our observation for ethylene to produce sweating such as is commonly with the general anesthesias. This we believe to be a most important advantage. One hundred and forty of the cases showed the skin was dry and normal at the completion of the operation. In twenty-nine it was warm but somewhat moist. In two cases it was cool and moist and both of these cases were considerably shocked. Usual precautions were taken to prevent loss of body heat in the operating room and on the return to bed. We are quite sure that our cases did not show shock as quickly with ethylene anesthesia as with that of other types.

OOZING

An objection that has been urged to ethylene anesthesia is that it promotes bleeding and is apt to cause oozing. We have paid especial attention to this in our series of cases. We feel that in most cases when the skin incision is made, there is a tendency to ooze not seen with ether anesthesia. Small vessels that ordinarily thrombose immediately seem to leak longer than usual. However, we have found that in practically all cases by the time the operative field had been exposed that the tendency to ooze had ceased and that clamps may be safely removed excepting on the larger vessels. When we began to use the gas we feel sure we used an unnecessarily large number of ligatures. Experience has taught that these are unnecessary. The application of forceps for a few minutes will effectually control the bleeding. The ooze was particularly noticeable in breast amputations. We have not found that wounds were more apt than usual to develop hematomata or delayed hemorrhage. We are confident the objection urged against ethylene on the ground that it promotes bleeding is not justified.

RAPIDITY OF RECOVERY

Patients recover from ethylene very quickly. Practically all of them regain full consciousness and answer questions intelligibly before they leave the operating room. Even in prolonged anesthesias with a small amount of ether the patient is thoroughly and entirely conscious within five minutes. As is to be expected early postoperative morphia is necessary. Even those cases which had preliminary hypodermic medication complain bitterly with the early return of consciousness and, indeed, we believe more quickly than with nitrous oxide. Practically all cases require ¼ grain of morphine immediately after the return to bed. Subsequently they were given the usual amount.

POSTOPERATIVE NAUSEA AND VOMITING

It is difficult in any anesthesia to determine just how much nausea and vomiting are due to the agent employed and how much to other causes. Fear, as we know, induces nausea in some people and the percentage which is nauseated following the administration of morphine is very large. We found that about 65% of cases vomited immediately following the withdrawal of the mask, in some cases before they could be removed from the operating table. The retching lasts only a minute or two and the nausea has entirely disappeared by the time consciousness is fully regained and most patients have no recollection of it. The reports of other surgeons who have used this agent indicate that about 40% of their cases vomited. As will be seen, our percentage is much higher.

POSTOPERATIVE GAS PAINS

Most surgeons have reported their laparotomy patients did not suffer from gas pains to the extent that they do with other anesthesias. We have not noticed any perceptible difference. We believe that while the anesthetic, in a measure, influences gas pains, that in most cases the type of operation and the temperament of the individual are the most potent factors.

SAFETY

We feel entirely safe when ethylene is being administered. There seems to be no respiratory depression, no interference in any way with free breathing, no suffusion or stertor and in no cases has it been necessary to resort to artificial respiration. We have had no deaths in any way attributable to the anesthetic and in a much smaller number of cases with nitrous oxide anesthesia we feel that we have had two deaths attributable to that agent. The margin of safety, in our opinion, is fully as great as with that of ether and much greater than with that of nitrous oxide.

PERCENTAGE OF MIXTURE

Anesthesia can be induced and maintained with a 20% admixture of oxygen. This, it will be noted, is about four times the amount usually compressed in nitrous oxide anesthesia. It is not necessary to partially asphyxiate the patient to secure anesthesia as it is with nitrous oxide. Very often we have gone as high as 25% oxygen. In other cases we have dropped the percentage as low as 18%. It has been found, however, that in those cases in which the anesthesia is unsatisfactory, no improvement is to be expected by depriving the patient of oxygen. It is better to increase the quantity of an average mixture or to add ether. Quite naturally with increasing erperience the anesthesias have improved in character and there has been a great reduction in the amount of gas used. Formerly we induced the anesthesia with too great a quantity of gas, starting with three or four gallons in a Heidbrink machine. Now we begin with one or two gallons of a 20% mixture. We have often found that when the patient is thoroughly anesthetized that the amount of gas can be greatly reduced, sometimes halved. Very often during a prolonged anesthesia the amount of oxygen can be increased. Our machine is not equipped, and we have not found it necessary, to add carbon dioxide for respiratory stimulation as advocated recently by Lundy. If a period of shallow breathing develops, which is very rarely, a few whiffs of ether is sufficient to stimulate respiration.

VARIABILITY OF GASES

We believe that further effort should be made towards standardization of the quality of the gas. There can be no doubt that it varies greatly. We have had one or two tanks with which it was extremely difficult to work and this has reflected unfavorably on our statistics. The induction with these tanks was apt to be less satisfactory but more particularly there appeared to develop a cyclic vomiting during the anesthetic, the patient suddenly retching or moving about without warning, there having been no change in the quantity or percentage of the mixture. We have usually found that the addition of a few whiffs of oxygen overcomes this difficulty. In some other cases changing the quantity, either reducing or increasing the amount given, without changing the percentage mixture aids. Since we do not feel that the difficulty lies with the administration but rather with the gas itself this is rather hard to prevent. I believe that all persons who have used ethylene have noted this difference in tanks. Two tanks, one acceptable for anesthesia and the other entirely unsatisfactory have been submitted to chemists for examination. No reason for the difference in anesthetic properties was determinable. We have observed that the last portion of the gas in a large tank is less apt to be satisfactory than that obtained when the tank is first opened, chiefly in that it is apt to induce more nausea. Reports from English observers, making the gas themselves in a very pure state, indicate almost an entire absence of the retching during anesthesia and the postoperative nausea we have encountered.

EXPLOSIBILITY

A common and, we believe, somewhat valid objection urged to ethylene as an anesthetic agent is its explosibility. There have been perhaps five or six explosions reported with, we believe, one death,. One or two of these were probably due to a lack of the most elementary precautions, precautions that should be used with either ether or nitrous oxide whic,h as we know, are both explosive. The gas itself unmixed with air is not explosive. There is, therefore, no danger of explosion of the tanks themselves. Neither is the gas in the proportions used for anesthesia explosive. It is only very high dilutions that make an explosive mixture. These dilutions are such as might be encountered in an operating theater after a morning's work, the gas rising and diffusing more readily than that of ether. It must be evident that no open flame nor cautery of any type should be used when the gas is being given nor should either be used in the room in which gas has been given without there having been thorough ventilation. Some of the early accidents arose from a disregard of this very reasonable precaution. We have never, in any case, used open flame or cautery when ethylene was being given and we have instructed the operating crew never to permit the use of either in a room following the use of ethylene without thorough ventilation. Neither is an open flame permitted across the hall from the operating room while the gas is being given. The possibility of spark from electro-surgical diagnostic or therapeutic instruments makes doubtful the advisability of their use in connection with ethylene. Kretchmer of Chicago has, however, reported fulguration of bladder tumors in which he used ethylene. I have personally used it in several cases of cystoscopy though I believe that sacral anesthesia is a safer and much more satisfactory anesthesia for this purpose. Most certainly open flame, cautery or sparks of any kind should be avoided while ethylene is being used.

One of the most difficult phenomena to contend with in connection with the use of ethylene is the production of static electricity. Two or three of the explosions have resulted from a static spark, one of them arising when the metal mask was hung upon the machine striking against another metal part of the apparatus producing a spark. We observed in walking down the halls in the hospital in which we use ethylene that a static charge was easily generated and a spark was often obtained by brushing the radiator or touching an elevator button. Following the investigation of Dr. Isabella Herb at the Presbyterian Hospital in Chicago, who showed that in the operating rooms in that hospital a large amount of static eecltricity was generated, we investigated our own operating rooms and halls. The machine itself was grounded by means of a chain to the steam pipe in the operating room. A metal tube was used to convey the gas from the tank to the mixing chamber although in the light of subsequent investigations this proved to be hardly necessary. A metal core was placed in the rubber tube from the mixing chamber to the mask. Neither the operating table nor the anesthetist nor the patient were grounded. An electroscope was then placed upon the anesthesia machine. Part of the operating crew were instructed to walk rapidly down the tile floors dragging their shoes establishing a contact with the electroscope on the machine. The nurses were then instructed to walk rapidly down the hall dragging their feet on the floor and brushing their skirts against the wall and return, immediately establishing a contact with the electroscope on the machine. These tests were repeated several times and in no instance did the electroscope indicate any static charge and it was assumed that such static electricity as was generated was adequately grounded. With the elimination of open flame or cautery of any type and with what appears to be satisfactory grounding of the machine we feel that we have avoided all danger of explosion from the gas. I do not believe, however, that ethylene should be used without a thorough appreciation of the danger from explosion and without an investigation of the premises upon which it is proposed to use it. We do believe that it is such a meritorious anesthetic and one designed very probably to displace nitrous oxide in general surgical work that it should not be eliminated because of the slight danger of explosion which can be obviated by only very reasonable precautions.

FAILURES

There have been two failures to induce anesthesia in this series. Both these men were chronic alcoholics in whom it was extremely difficult to secure anesthesia with ether. One was a fracture of the neck of the femur in which it was desired to dress the fracture in the Whitman position and the other was a case of very acute appendicitis, the patient just having recovered from a prolonged spree. In neither case could we induce anesthesia and in both cases it was difficult to carry out the work even under ether anesthesia.

COST

With the machine which we are using and which, we believe, uses a slightly larger amount of gas than certain other types we have ascertained the anesthesia to cost between $2.50 and $3.00 per hour. This, we believe, is slightly more than is nitrous oxide oxygen anesthesia.

PATIENTS' OPINIONS

Practically without any exception, patients, who had previously had other anesthesias voluntarily commented on the desirability of ethylene. Those who had previously taken nitrous oxide especially noted the contrast, in the ease of induction and very few of them complained of headache afterward. Among those who took the gas were two or three physicians, several medical students and nurses all of whom, you will agree, are apt to be somewhat critical in their comments. All expressed their good opinion of the anesthetic. We found the cases of prostatic hypertrophy, all grateful for the easy induction and rapid recovery. A vaginal Cesearean section regained consciousness before leaving the operating table. We were able to resect the nerve in three cases of painful amputation stump under ethylene anesthesia, the nerve, however, having been injected with alcohol before it was sectioned. A loose cartilage in the knee was removed without difficulty. All herniotomies except those done under local anesthesia were performed under ethylene. Goitres react very well under ethylene anesthesia. Two brain abscess cases took the anesthesia very well. Three bone grafts were performed under ethylene. In all the hysterectomies it was necessary to add ether. In no gall-bladder operations were we able to complete the operation without ether. Four breast amputations were completed under ethylene though others were given ether alone because of the desirability of using cautery. Here it may be emphasized that it is not desirable nor safe, of course, to use ethylene for induction, then ether and the cautery. The danger is evident.

SUPPLEMENTARY

Since the above paper was read Sherman, Swindler and McEllroy (J. A. M. A., June 5th, 1926) have reported two fatalities and one serious complication in connection with the use of ethylene. Tests showed a high concentration of carbon monoxide in the blood of guinea pigs used for investigation of the gas used in these cases. Also bubbling of the gas through normal human blood gave typical tests for carbon monoxide hemoglobin. The possibility that ethylene combines with hemoglobin forming a compound similar to carbon monoxide in its reactions was considered. Luckhardt's careful work, as well as that of others, excludes this possibility, however. As stated in our paper we have observed considerable variation in reaction of patients to different tanks of ethylene. This has been chiefly in the case of induction and th eamount of vomiting following immediately upon the anesthesia. The possibility of contamination of the gas with carbon monoxide gas merits serious consideration and further investigation.

Since electrical heating devices to prevent freezing of the gas at valve heads cannot be safely used with ethylene, hot-water bags must be substituted. With a heavy flow of gas from a new cylinder this is not always satisfactory. Sise (Surgical Clinics of North America, June, 1926) obviates this difficulty by use of two connected tanks, one nearly full and one more nearly exhausted permitting only a small flow from a full tank the adjustments of pressure being made from a partially emptied tank. This, he says, overcomes the difficulty of freezing.

CONCLUSIONS

1. Anesthesia is much more easily and rapidly induced than with nitrous oxide.

2. There are none of the unpleasant sensations such as whirling or pounding in the head that occur with nitrous oxide.

3. There is better relaxation than with nitrous oxide though it is usually not sufficient without ether for abdominal work.

4. There is no cyanosis.

5. There is no respiratory irritation.

6. The skin remains dry and warm.

7. Increasing oozing (if it exists), is only temporary.

8. There is very rapid recovery.

9. In practically all our cases there is immediate postoperative vomiting.

10. Morphine is required postoperatively very quickly.

11. The odor is objectionable only to those unaccustomed to it and the patients lose their sense of smell after three breaths usually.

12. It is probably not more explosive than ether or nitrous oxide. Open flame or cautery should never be used with it and precaution should be taken against static spark.

13. There were 2 entire failures to induce anesthesia in a series of 164 cases.

DISCUSSION

J. E. M. THOMSON, M. D., (Lincoln): I think this paper should not pass without a word of discussion. It is a study of a subject we have not had before—at least, I have not heard it before.

I want to say a word in behalf of ethylene in cases in which the patient is in an unusual position. The smoothness of the breathing has impressed me as compared with patients who have been given ether. When a patient is on his belly, you have a certain amount of uncertainty of breathing — cyanoses — a thing you dislike to see when you are doing an extensive and difficult operation. We do not see that when ethylene is used. We have not used it a long time in Lincoln, but I think of three cases that have recently been operated on — diffusion operations — where we have used ethylene with most gratifying satisfaction so far as the patients' condition is concerned.

I wish Dr. Duncan would bring out the danger signals that the surgeon may notice. I do not know what they are. We speak and think of ethylene skeptically sometimes.

B. H. HARMS, D. D. S., (Omaha): I am quite anxious to discuss this paper because of a considerable number of remarks the essayist has made which can be more or less misinterpreted. After having dealt with anesthetics for twenty years, and having been associated for ten or twelve years with the associations of scientific anesthesia, I have gone through this period of the newer anesthetics and have heard the discussion of scientific papers from the floor for a good many years; and so I want to quarrel with the essayist about some of the things he has said about ethylene. I am still a 100 per cent nitrous oxide and oxygen man in spite of the fact that ethylene has some advantage over it. Ethylene is not yet as good as nitrous oxide and oxygen, but a little better than ether for the patient.

In the first place, he says an anesthetic is for the purpose of eliminating pain. That is what we think of when we think of anesthesia; but the great purpose is to prevent shock, and the anesthetic which will best prevent shock is the best for the patient.

There is another thing which has gone the rounds of the press and the scientific journals, and the essayists have mentioned it every time they have spoken of ethylene, and Dr. Duncan has done likewise. That is about cyanosis. The essayist says he does not have the cyanosis with ethylene that he does with nitrous oxide, and we grant him that; but that does not mean that there is less anoxemia. Color does not determine the degree of anoxemia; neither does the amount of oxygen in the lung determine the amount of oxygen in the blood. Take carbon dioxide, and you can give the patient 90 per cent oxygen and 10 per cent carbon dioxide, and the patient will be a beautiful red. You will not get cyanosis so far as color is concerned, but you will grant me that the patient will be very anoxemic. The difference between the amount of oxygen in the blood and in the lung is a matter of selectivity, or union between the hemoglobin and the oxygen. Carbon monoxide gas has three hundred times the affinity for hemoglobin that oxygen has. That is why a little bit of carbon monoxide takes all the room in the hemoglobin and crowds the oxygen off, and you are going to have a great degree of anoxemia; yet the patient will be in good color. The same holds true with ethylene. The affinity of ethylene for hemoglobin is so much greater than that of oxygen that you need a greater amount of oxygen to keep your patient from going bad as compared with nitrous oxide.

Your color is not the thing that determines anoxemia. That is a thought that I want to get over to you.

There are so many points brought out in a paper of this sort that to discuss it off hand is quite a task. The essayist is to be complimented on his paper and the things he has brought out. A paper is only good because it brings out points of discussion.

In my own field, that of the mouth, we use nitrous oxide and oxygen, 100 per cent of the time and there is no need for any other anesthetic in that field. We do not need the extreme relaxation that the man who practices in the belly needs. There is one thing about anesthesia, especially expert anesthesia, that has stood in the way. The anesthetist has so often had to play up to the surgeon in order to get the business. I have anesthetized with nitrous oxide and oxygen for many belly operations — gall-bladders, etc. I have very few times had to use ether in conjunction. It depended a great deal upon the surgeon — his techinque and what he desired. Some men are willing to put up with a little muscular tone. I cannot do it with all surgeons. We must give the surgeon what he wants in the way of relaxation. In the field of oral surgery, we do not need and should not demand such muscular relaxation. Nitrous oxide and oxygen, so far as I know, is the only anesthetic which will not relax the throat muscles and abolish the cough reflexes in ordinary anesthesia. Some years ago, forty thousand tonsillectomies were reported without post-operative pneumonia, and the reason was simply, the cough reflex was never abolished. Any man who works in the upper air passages knows that secretions, even though you do not get blood down the throat, are quite a factor in post-operative pneumonia. If the cough reflex does not protect the lung, you have post-operative pneumonia to deal with. I thank you.

E. G. JOHNSON, M. D., (Grand Island): I saw Dr. Hill and Dr. Caine using these ethylene machines without any apparent attempt at grounding. In asking them about it, they told me static was not apparent at the elevation of their cities — seven and ten feet, respectively, above sea level. I should like to ask Dr. Duncan if the elevation has a bearing upon the formation of static sparks?

J. W. DUNCAN, (closing): Dr. Harms' conception of good anesthesia must differ from mine as widely, of course, as does the character of our work. An exodontist does not need the degree of relaxation for his work that does a general surgeon. The maintenance of the cough reflex may be desirable in the extraction of teeth. I cannot, however, in most cases successfully complete a laparotomy on a patient under anesthesia whose cough reflex is not abolished. He says that the purpose of anesthesia is to prevent shock. The prevention of shock is, beyond all doubt, desirable, but the surgeon who depends solely on his anesthesia to prevent shock is a poor type of surgeon and seeks the unattainable.

I should like to make it clear that I am not an anesthetist. I did not administer the anesthetics discussed in my paper. They were, however, my surgical patients. It has been the experience of all surgeons that the claims made by the supporters of new anesthetic agents need clinical verification. Hence, this report. I hold no brief for ether, ethylene or nitrous oxide. The advantages, limitation and value of the latter agent, as compared with ether, are definitely fixed in the minds of most surgeons. Ethylene is a comparatively new agent. One who has not used the gas in a large number of cases has no basis for comparison with either nitrous oxide or ether. It is as unreasonable to argue that ethylene does not have advantages over nitrous oxide as it is to argue that ether does not have advantages over either of the gases. I do not believe there is scientific evidence to show that there is less shock with nitrous oxide than with ethylene. I am entirely sure there is no clinical evidence covering this point. I am not prepared to state whether the affinity of ethylene for hemoglobin is greater than that of nitrous oxide. Beyond all doubt, the oxygenation of blood is equally good with ethylene as with nitrous oxide for 15% to 20% of oxygen is used with ethylene as compared with 7% to 10% used with nitrous oxide. The patient under ethylene, provided there is no mechanical obstruction, is never an anoxemic and there is never any deprivation of oxygen.

Dr. Thomson asked about the danger signals. I do not know what they are because I have never seen them. Most patients are pinkish in color while taking ethylene. I have seen some who have developed an ashen grayish hue. These I felt were being over-saturated. If the quantity be reduced, the percentage mixture remaining unchanged, the color will improve at once. The ease with which patients take ethylene and the soft respirations are particularly noticeable. If one were to place two patients on their abdomens, (a difficult position in which to secure free breathing under anesthesia), and were to give one ethylene and the other nitrous oxide, a striking demonstration of the difference in breathing under the two gases would be shown. Patients under ethylene properly given always breathe quietly and do not strain.

Dr. Johnson discussed grounding of the anesthetic apparatus and the patient to lessen danger of static spark. For several months after I first begun to use ethylene I did not use a ground. Dr. Isabella Herb, within the past few months, has emphasized static spark as the chief source of explosion with ethylene. I personally interviewed Dr. Herb who expressed the conviction that it is unsafe to use ethylene unless the precautions used in the Presbyterian Hospital in Chicago are followed. A large metal plate supports the whole operating unit, i. e., the table, anesthesia apparatus, anesthetist, surgeons, assistant and nurses. The new operating rooms are constructed with metal strips between the tile blocks. I noted, however, the gas being used for anesthesia without any grounding apparatus being employed. I am not convinced of the necessity for such extreme measures. Most hospitals I have visited which were using ethylene were avoiding the use of cautery or the introduction of flame into the operating room—nothing more.

Beyond all doubt, the humidity of the atmosphere makes a great deal of difference in the danger of static spark. If I were operating at an elevation of 10 feet above the sea level I do not think I should be concerned about static spark. The sterilizers in the operating rooms where I work most often "pop off" steam sufficiently often to keep the atmosphere rather damp. As we know, both ether vapor and nitrous oxide mixtures are inflammable and the investigation of static as a source of ignition was precipitated by an explosion of nitrous oxide gas in a hospital where that gas had temporarily displaced ethylene. The general surgeon who uses ethylene to any extent cannot help but appreciate its advantages over nitrous oxide and ether in many cases. Neither should he fail to realize the danger connected with its use and take precautions to avoid them.

CHRONIC EMPYEMA*

HERBERT H. DAVIS, M. D.,
Omaha, Nebraska.

In this discussion of chronic empyema I wish to emphasize two points: 1. In nearly all cases it is preventable and can be avoided by the proper treatment of empyema in its acute stage. 2. Methods are given for obliterating the cavity.

The factors which may cause an empyema to become chronic are:

1. Open operation too early. The pleura is still free and the lungs collapse leaving a very large cavity.

2. Operation too late. If delayed too long the pleura becomes thick and resistant so it will not permit the lung to expand.

3. Inadequate drainage. Free drainage is absolutely essential until the cavity is completely obliterated. The external wound, unless watched, often tends to close too early.

4. Retained foreign bodies such as drainage tubes, sequestra from ribs, etc. If these are found they must be removed.

5. Osteomyelitis of rib ends. This occurs in about 4% of rib resections. For this reason I prefer a major intercostal thoracotomy. If resecting a rib it is wise to cover the ends with bone wax before opening the pleural cavity. If osteomyelitis occurs resect that portion of the rib.

6. Broncho-pleural fistulae. Most of these will close if drainage is adequate.

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*Dry Clinic given before the annual meeting, Nebraska State Medical Association, Omaha, May 11-13, 1926.

7. Side pockets and lateral branch sinuses. Suspect these if with Carrel-Dakin treatment the cavity is not free from pus in ten days. A secondary operation to produce adequate drainage is usually necessary.

The causes above given can be treated early and thus the empyema rapidly cured. However, the following rarer conditions may cause it to become chronic in spite of good treatment.

8. Fibrosis of lung. Re-expansion is impossible and thoracoplasty becomes necessary.

9. Tuberculosis. Never do an open operation on acute tuberculosis empyema except when it is as a life saving measure. If drainage is once started it is practically impossible to stop it.

10. Actinomycosis. Not common. Prognosis not favorable.

11. Syphilis of lung—rare. .

R. W. B., a male, aged 51, was seen by me in consultation with Dr. George H. Gilmore of Murray, Nebraska, in September, 1923. He was suffering from chronic empyema and a broncho-pleural fistula. His history was as follows:

Seven months previously he had influenza followed by pneumonia. He soon developed right acute empyema. In a distant city he was aspirated many times until the pus was too thick to drain through a needle. Six weeks after the onset of the empyema a rib resection was done. Two weeks after operation methylene blue was injected into the cavity. He coughed it up showing the presence of a bronchopleural fistula. Ever since the rib resection he had a productive cough. He ate well but in spite of this kept losing weight, going down from 130 to 97 pounds in the two months following operation. He discharged pus for two months through the thoracotomy wound but then it healed over. He was dismissed from the hospital weighing 97 pounds, with his wound closed but was spitting up pus. This purulent expectoration began when the wound healed. Since then the wound has opened and closed about a dozen times. When open there is much less pus coughed up. Six weeks after returning home his physician made an intercostal thoracotomy and introduced a tube. However, the wound soon closed. His temperature has been about 100 degrees F in the afternoon.

When I saw him he had given up all hope of living and wished to die as soon as possible. He was pale and very much ematiated, weighing only 83 pounds. He was about six feet tall. He was in bed apparently too weak to rise, coughed considerably and spat up about 8 ounces of pus daily. There was a narrow sinus at his old wound and practically his entire right chest was filled with pus. Above the fluid level was air.

October 4, 1923, at the Immanuel Hospital I resected one and one-half inches of the 9th rib at the site of the sinus. There was osteomyelitis of the rib ends with regeneration so the ends practically met. The periosteum was also removed to prevent too rapid rib regeneration. About a liter of pus, showing a mixed infection, escaped revealing a cavity from the dome of the chest to the diaphragm and extending to the mid-line. The operation was with local anaesthetic.

There was considerable shock. However, by afternoon he felt as well as before the operation, the cough was much less, and in the evening he ate a good sized dinner and got up to the commode. The next day his cough had stopped and there was practically no sputum. Two days post-operative small amounts of Dakin's solution were injected with him in a sitting position without producing cough. A high caloric diet was given. Eleven days post operative he weighed only 80 pounds but looked and felt much better. From then on he gained weight and strength rapidly. At four and a half weeks the bronchial fistula had closed spontaneously and he weighed 93¾ pounds.

At three months with irrigations of Dakin's solution, breathing exercises, calisthenics, and high caloric diet, the cavity had reduced to 50 cc. and he had gained 30 pounds. At a capacity of 50 cc. the cavity became stationary in size. So on January 17, 1924, (104 days after first operation), a decortication operation was done. The parietal pleura was one-half inch thick and the visceral ¼ inch thick. The lung after decortication would expand to entirely fill the cavity. Two months later he was dismissed with a cavity holding only 1 cc. This has subsequently closed and at the present time he has no thoracic trouble at all.

This case brings up many interesting points. In the first place with the proper treatment in the acute stage it could probably have been cured in a short time. The operation was delayed too long in not being done until six weeks after the onset. By that time the pleura is considerably thickened and makes lung expansion much slower and more difficult. The thoracotomy opening has a tendency to close even though the pleuritis is not cleared up. It should be kept open until the cavity is sterilized and the cavity obliterated. In this man it was allowed to close. As there was a broncho-pleural fistula the pus found an outlet through the bronchus. Therefore, the chronicity was due to three factors: 1. Too late operation. 2. Inadequate drainage which is the most important; and 3. Bronchopleural fistula.

Pus takes the easiest route to escape. As soon as an adequate thoracotomy opening is made it can get out this way easier than through a broncho-pleural fistula. Most such fistulae will then close spontaneously. With failure to close it must be remembered that it is often a safety valve to drain a lung abscess or bronchiectasis. In such a case surgical closure is contraindicated. Small fistulae usually heal following chemical cauterization for the purpose of destroying the endothelial lining. Other methods are by mobilization and ligature, by inverting, muscle transplants over the fistula, etc.

The value of sodium hypochlorite (Dakin's solution) in empyema is well illustrated in this case. Even more important than its antiseptic action is its property of dissolving necrotic tissue and thus thinning the pleura. This case, just with the use of Carrel-Dakin treatment and blowing exercises reduced a cavity of several liters capacity to 50 cc. in three and one-half months. If this treatment is begun before too much fibrous tissue is formed on the pleura, most cases have the cavity sterilized and entirely obliterated by this treatment alone. Even though the cavity is not entirely obliterated it cleans the wound and greatly reduces its size.

When should further operation be done? It should be delayed until the cavity remains stationary in size and its capacity is not decreased by a forced expiration with the mouth and nose held closed. The nature of the operation is the next consideration. If possible the lung should be expanded to fill it. This is often done by a decortication operation as suggested by Delorme but first successfully done by Fowler. In case no line of demarcation can be found between the thickened pleura and lung, the method of making crossed gridiron incisions through the pleura, described by Ransohoff, is often effective. Decortication or gridiron incisions should not be done in tuberculous empyema. They will also fail to produce obliteration of the cavity in fibrosis of the lung as then the lung itself is incapable of expansion. If such is the case and the cavity is small it may be obliterated by a muscle or fat graft. If a large cavity a collapsing thoracoplasty after the methods of Estlander or Schede are necessary. In these operations the chest wall is let down to the size of the lung. However, this is deforming and the vital capacity is decreased.

In this case decortication permitted complete expansion of the lung which, of course, is the ideal condition.

The other case I am describing was not really a chronic empyema but rather an acute case in which the lung could not be made to expand because of fibrosis and the man's weakened condition. I am using it, however, in this discussion because so many procedures in obliterating a cavity were used. His extreme good nature allowing me to do one operation after another was all that made his good result possible. Auricular fibrillation made extensive operation impossible.

W. H. M., age 62, referred by Dr. J. H. Vance of Omaha, entered Immanuel Hospital February 6, 1925, with acute encapsulated right empyema. The next day Dr. Vance aspirated the chest removing six ounces of a pinkish serous fluid. X-ray showed a small amount of fluid in the right pleural cavity at the costo-phrenic angle with no movement of the diaphragm and some thickening of the pleura above the fluid. The lungs were clear. Aspirations on February 9th and 14th withdrew no fluid. I saw him on February 20th when with local anaesthesia I resected a portion of the 9th rib. I do not like resecting a rib but in an encapsulated empyema this may be necessary. Aspiration revealed thick pus which on a smear was streptococcus. Three ounces of thick pus were evacuated from a cavity four inches in diameter and two inches deep. The parietal pleura was already 1 cm. thick showing how rapid the thickening may occur in a streptococcus empyema.

The following day Dakin's solution irrigations and exercises with a blow bottle were begun. He was a rather feeble old man and did not exercise his lungs well. The infection did not clear up as usual with the Carrel-Dakin treatment. It would look clean for a day or two and then the next day have considerable pus present, indicating another cavity connected with the main one by a narrow sinus.

April 22, 61 days after his first operation with general anaesthetic, the wound was opened wide and a cavity three inches long by two inches wide was found between the lung and diaphragm connecting with the main cavity by a narrow neck. The thick pleura at the neck was cut away to make it one single cavity and two long incisions nearly the length of the cavity were made through the visceral pleura which was 5 mm. thick and very firm. There was considerable shock.

In spite of exercises and Dakin's solution the cavity remained at 7 ounces. One month later the cavity was reopened. It extended up to the 4th rib posteriorly, and inferiorly to the mediastinum. Gridiron incisions were made through the visceral pleura which was 8 mm. thick. However, the lung would not expand due to fibrosis of the lung itself.

Therefore it was decided to collapse the chest. June 16th which was 25 days after the last operation, three inches of the 10th and 11th ribs were removed subperiosteally. Owing to his bad condition it was stopped at that point. Eleven days later three inches of the 7th, 6th, and 5th ribs were removed. No further operations could he done owing to the feeble heart. After a couple of months he began gaining strength and weight. The collapse of the chest reduced the cavity to one ounce. The walls were epithelialized and October 17th, 112 days after the 5th operation he was dismissed in fairly good condition. I was afraid to do any further operations and, aside from the difficulty of keeping it clean, the cavity would not bother him.

Secretions kept collecting in the cavity and it was decided to fill the cavity with a graft. He was readmitted on January 8, 1926, 83 days after dismissal. After 5 days of Dakin's irrigations and digitalis a pedicled fat graft was placed in the cavity denuded of its epithelium and the wound closed except for a small rubber tube drain. He was dismissed January 29th with the wound entirely closed and healed. He has remained well since.

This case became chronic because of fibrosis of the lung and partly due to the lateral cavity with inadequate drainage. The first operation was for drainage, the next two far expansion of the lung. Failing in this, the fourth and fifth operations were for collapse of the chest wall, and the sixth to fill the small remaining cavity by means of a pedicled graft. It also shows that in a very weak patient the operation can be done in many stages. It can be stopped at any point the patient's condition becomes bad.

In conclusion let me reiterate that in most cases chronic empyema can be prevented. It is a much more difficult problem than acute empyema due to the thickened firm pleura which will not admit the lung to reexpand. No empyema, either acute or chronic, can be considered cured until the cavity is both sterilized and completely obliterated.

DISCUSSION

J. FREDERICK LANGDON, M. D., (Omaha): It seems to me the secret of the treatment of acute cases is adequate drainage. After the vast number of cases treated during the war and all the methods that came into vogue, I think we are back again almost to where we started: to provide adequate drainage, usually with rib resection. It seems to me in my own practice, I get the best results with a rib resection, taking out a good big piece and getting free drainage, and maintaining it.

I also think Dakin's solution a big help and big improvement over what we had before the war. It does without question dissolve these clots of fibrin that block up the drainage.

I do not know whether Dr. Davis objects to resection of ribs, but I can not see the objection to a resection except it is osteomyelitis of the ends. Personally, I have not had that occur that I know of. A large resection and adequate drainage, if the case is not operated too early, will effect a cure in most of the acute empyemas.

Even in children, I believe the drainage should be adequate. I do not hesitate to resect a rib in a child. Many pediatricians think inserting a catheter between the ribs will accomplish it, and it will in plenty of cases. I do not hesitate to get plenty of drainage, and should like to ask Dr. Davis as to his idea on it.

J. A. WEINBERG, M. D., (Omaha): I expect to hear considerable argument on this paper, because everybody here does a rib resection. Comparatively few do an intercostal incision. I think the main reason for this long admiration for rib resection in preference to intercostal incision is that the latter is not done properly. In almost every instance a cut is made in the skin and then through the muscle and the pleura, and a rubber tube put in. If one does use Dakin's, it is added to this. In three days this wound will have no opening at all. If such is done, I think the rib resection would be the correct system.

But if a liberal drainage is made at least three inches long and all the muscle is dissected out, then adequate drainage will be had and that wound will remain open during the course of the treatment. With this method of treatment—and I think Dr. Davis will bear me out—these cases will close in three to four weeks. Six weeks would be an unusually long period. From my recollection of rib resections, six weeks is an unusually short time for an empyema case. It is an improper line of incision. Instead of being on the skin, it is perhaps at right angles to the skin when the patient's arm is down. I should consider that an important point.

J. E. SUMMERS, M. D., (Omaha): I should like to compliment Dr. Davis on the skilful way in which he handled these two exceedingly difficult cases. The first one was an old case such as we all get hold of, and few of us handle them as well. In the second case, I want to compliment him chiefly upon the good judgment he used in not trying to do too much at once in a weakened individual with a bad heart. We often fall down in our work by not using good judgment in similar instances.

CLYDE ROEDER, M. D., (Omaha): I want to take this opportunity of presenting my compliments to the Doctor. I think he handled these cases wonderfully well. We know how these individuals are.

In regard to rib resection, I think there are rather two views to that. Take an individual whose ribs slant down and the intercostal incision to clean out may not give you quite enough drainage. In case you have to resect a rib, and it is not desirable if you can get away from it—my father taught me to use a hot iron on the end of the rib, but you must be careful not to touch the periosteum; but certainly it keeps the infection back. I have done that ever since, but I have never seen infection. The bone wax may slip off, but that is essential, leaving the end of the bone open.

In regard to drainage, I think a Breuer spool still has a place. It has a flange on the pleural side and the skin side, and gives adequate drainage. You can wash through very nicely; and as Dr. Davis says, these cases require a great deal of personal attention.

B. B. DAVIS, M. D., (Omaha): All I have to say is Herbert has absolutely convinced me my old method of rib resection is not as good as what they call the major thoracotomy. I had always had the same opinion some have expressed, that the ribs were so near together in many cases it would pinch the tube and interfere with drainage. The way I used to make the incision, it did; but whenever you make a long incision, you do away with the muscles drawing the ribs together, and there is absolutely good drainage; and I am for him!

DR. HERBERT DAVIS, (closing): I expected and was very glad to get different views on this question of whether you should resect a rib or not. The reason, as I see it, for ever resecting a rib is to get adequate drainage. The reason rib resections were ever done was because they were not getting adequate drainage without.

I saw Dr. Moschcowitz in New York City do two acute empyemas one afternoon. He is a great advocate of the major intercostal thoracotomy. You must make an incision three or four inches long through the intercostal muscles and the pleura. He did that, and had his interne stick both hands in the wound up to the wrists. That is a plenty large enough incision, I think.

I usually put in five or six tubes one-half inch in diameter for the first twenty-four hours, and that is better drainage than I have seen with rib resections. Occasionally, as Dr. Roeder has said, in chronic cases it may be necessary to do a rib resection. I do not object to it. The main point is adequate drainage. If I find I can not get adequate drainage otherwise, I have used that method.

As far as children are concerned, I think you can go on exactly the same principle as in adults.

As to the time for making the opening, after you get thick pus, make a large incision for adequate drainage by the open method. I think you get better results that way.

Dr. Summers spoke of stopping these operations in bad surgical risks and completing the work at another sitting. In these cases, to have a patient go bad on the table is usually the fault of the doctor, because they can be stopped in any stage. Dr. Keller has brought out many stage operations in cases with weak hearts. Later go on and do more of the operation.

As far as the nerves are concerned, I think in many of these operations you can make your incisions over the ribs and not interfere with the nerve at all. It is more commonly done that way than the other. Dr. Schede describes removing the ribs and intercostal muscles and skin, and many follow that method; but the method of Dr. Estlander is not so radical, and I think is preferable in most cases.

PAINFULNESS ON PINCHING THE SKIN OF THE ABDOMEN AS A DIAGNOSTIC SIGN

Sensitiveness to pressure and muscular tension have often led to the erroneous diagnosis of appendicitis and to operation, especially when occurring in the right hypogastric region, although only a rheumatic or neuralgic affection of the abdominal walls was present. Prof. Strecker (Breslau) recommends lifting a fold of the skin of the abdomen and squeezing it together (of course without using force), which is not painful in a healthy person. If this causes violent pain on a circumscribed area, it is a case of a rheumatic, neuralgic affection of the abdominal wall. If there is a diffuse painfulness on pinching over the whole abdomen, hysteria is probable. This symptom may (of course in combination with the general condition, pulse and temperature) render valuable service in practice.—Ars Medici.

DISCUSSION OF AND DEMONSTRATION OF A PERIODIC HEALTH EXAMINATION OF AN APPARENTLY HEALTHY PERSON*

A. D. DUNN, M. D.,
Omaha, Nebraska.

When I was asked by the Committee on Arrangements to demonstrate a periodic health examination, I felt dubious; but when I saw the way they had blazened my name and the subject in red letters, I felt anarchistic. It is just another example of the fact that one can protect ones self from ones enemies, but not from ones friends.

A periodic health examination campaign has been launched by the American Medical Association. It has been endorsed by the Profession, by the House of Delegates of the American Medical Association, and by the Board of Trustees. All have felt it was time such a campaign be inaugurated as medical public policy.

The benefits to be derived from periodic health examinations are reciprocal. They are beneficial both to the public, and to physicians. The benefit to the public is of an educational and preventive nature. The client, as he is called, "Goes to school" for an hour in order to learn a few fundamental things about taking care of his health. His instruction is private. It is obvious that there is need aplenty for public instruction in health matters. I noted in an Omaha paper a few days ago that in a state high school contest, the school having the highest rating in the state, based on a point method of estimation from work done, was the Central High School of Omaha. The only subject in which its students did not score a point was physiology! Yet physiology is the most important thing that can be taught to our children. Furthermore, while we are on that subject and the question of medical public activities; the statement was made last night by Dr. Adams, quoting Miss Keller, who is in charge of public health activities for the Illinois State Medical Society, that they began to attain real success only when they left off advertising and concentrated on the education of the children in the school-room — food for thought for our publicity committee. Periodic health examinations promise to be helpful in a way, but inasmuch as only the adult population is reached they should not be considered the most important phase of our educational work.

The benefits to the profession are somewhat questionable. The fee is negligible, because we can ill afford to spend the time necessary for a careful health examination for the money we are likely to receive. If we get out of it a moderately subnormal remuneration in actual money, we shall have done everything financially that we may expect. The greatest benefits that will accrue to us are those that will come from advertising our work; from getting our worth and the knowledge of our methods before the public; from getting the public to come to us for examinations, and thereby discovering remedial conditions earlier than they otherwise would be discovered. Furthermore, periodic health examinations may do away with that age-long wail on the part of doctors: "It would have been all right if you had not come too late!"

Probably the greatest benefit to the profession will be the prevention of other agencies entering the field to take over this work. We have already our various Life Extension Institutes which presume to sell professional knowledge to the laity on commission. As middlemen they have been known to charge as high as twenty-five dollars for communicating to an individual the results of an examination, for which they had paid five dollars. Such methods react disadvantageously both to the profession and to the public. In order to prevent such agents from selling work that properly belongs to the medical profession, we must get into this game of periodic health examinations, because a demand is being created for them.

The health examination presumably deals with the normal individual. We must, therefore, assume a different attitude of mind than the one we assume with sick people. The *patient* comes to us because something is wrong. He comes for a diseased appendix, a cold, or a sinus trouble. The health client does not come because there is anything the matter, but to learn how he may keep himself well. Therefore, the knowledge and the methods involved in this type of examination are different from the methods ordinarily used in diagnosing and managing disease.

The examination differs from the regulation life insurance examination which demands the minimum examination necessary to keep within the limits of an average risk. Certain things are necessary in insurance examinations to eliminate the acceptance of grossly undesirable risks. In the health examination we must become philosophers and students of environment. We must change our methods of case study. We must rely on subjective information obtained through the history rather than on objective examinations. We must adopt the doctrine of conditionism; that we are not dealing with simple cause and effect, but with the conditions, the sum of which conditions produces abnormal or slightly abnormal physiology, lowering the efficiency and lessening the happiness of the individual.

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*Given before the annual meeting, Nebraska State Medical Association, May 11-13, 1926.

Such examinations cannot be made in a hit-and-miss manner during busy office hours. They must be made by appointment. I cannot conceive how a good health examination can be made for the first time under the best of conditions in less than one-half hour. The manual submitted by the American Medical Association says three-quarters of an hour to an hour. It must be done at a time when the physician is not rushed or hurried.

I shall not detain you long with the details of the examination, because you are hungry, and I cannot go against an appetite, which is far more primal than the one for information.

Turn to page 13 of the manual and you will note there a number of things in the form that we do not ordinarily go into in the examination of a patient. We are not so careful about the occupation of the individual, or the conditions under which he works — whether the place is crowded, dusty, poorly lighted, the hours unsatisfactory, etc. I saw a boy in his teens this morning who goes to work at seven in the morning and quits at eleven in the evening. Domestic conditions are often determinative. Remember family rows are poor appetizers and worse digestants, and family unhappiness leads to inefficiency, and finally may worry an individual down to a point where some of the etiological factors which produce organic disease get in their work. We must know about sleeping conditions — the amount of sleep, and whether the hours are regular or irregular. We must know something about what our client eats and the rate at which he eats. I think it is often of more importance to know whether a man gulps his food than what he eats. We have to get a rough idea as to the amount he eats, a difficult thing to get at; also the amount of water he drinks. Remember the body is a water-cooled machine. We are in solution. There are physiologic activities dependent upon optimum solutions, which if not maintained, a lowered performance of the machine results.

We have to go into certain sociological factors. It may seem strange that a doctor should ask about the social, political, club or trade associations. A man may stay out playing poker until the early morning hours and wonder why he is in trouble. The religious life of the patient may have something to do with his health. Religion is fundamentally emotional. It is one of the greatest weapons for good, but it may be an agent for evil. It is often necessary to know the pleasures of the individual. Sometimes the statement of the Irishman holds: "If it were not for our pleasures, how happy we should be!" Worries are significant.

A history of past illnesses is particularly important — tonsillitis, colds, luetic infections, nervous breadowns, cough, etc. What measures, if any, such as vaccination, have been used to prevent disease should be known.

Something should be known about the family tree — what sort of stock the client comes from.

RUNNING COMMENTS MADE WHILE MAKING A PHYSICAL EXAMINATION OF A HEALTHY CLIENT

In the physical examination, the most important thing is to get the client stripped. I do not know that there is any necessity of following a given form. The form submitted by the American Medical Association on page 14 is adequate. I think it is a matter of taste or custom whether you examine the patient sitting up or lying down. We must get an adequate conception of the individual and his build; how he carries himself, and how he stands and walks. You can often spot more by the way a man carries himself and walks than by a lot of examinations of reflexes and that sort of thing.

We should note the nose and throat and the condition of the teeth. Observe whether tonsils are present and if the anterior pillars are red, and whether there is inflammation and thickening of the pharyngeal folds. A rough watch test will do to determine the hearing. Whether there is headache and fatigue of the eyes on use should be noted.

The lymph gland system should be examined. Remember the lymphatic system is the second defense line of the body. The lymph glands of the groin will often tell whether there are venereal infections or infections in the lower extremities. The musculature of the individual should be looked at; the thyroid and the neck glands should next be examined. Often a finger in the suprasternal notch will give information as to the situation of the aorta, and other possible disturbances. I rather fancy one can tell as much about a chest by the way the patient uses it as in any other way. If there is chronic lung condition of any extent or standing, there is noticeable muscular atrophy. Diaphragm movements should be noted and are important.

As to the methods of examining the lungs and the heart, individual techniques vary. The essential thing is to make a systematic examination. It does not make any difference whether you get lung findings by palpation or percussion; and the same is true of the heart borders. Use the method you are accustomed to use. The only thing is that you be systematic. The examination should reveal changes in density, abnormal sounds, the lower borders of the lungs, and the extent of respiratory excursion. One of the first things that happens in any disease of the lung like tuberculosis is loss in respiratory excursion. Another important thing when examining the lungs, especially if anything in the history leads us to suspect lung trouble, is auscultation after an expiratory cough. It is the method of choice among tuberculosis experts, and will bring out rales which cannot be found otherwise.

When it comes to an examination of the heart and blood vessels, after outlining the heart, we listen for murmurs. The most important thing however, is cardiac efficiency. In the first part of Form B we have noted a pulse, with the patient sitting, of 87; after exercise of fifty hops, of 108; which dropped back to 84 after two minutes. A normal cardiac response as a rule means more than what we hear over the heart. It is well to go over the peripheral vessels. The talk by Dr. Jones yesterday makes us realize the importance of examination of the peripheral vessels, especially of the lower extremities.

Our client has no cardiac symptoms. His color is good, and he probably has a hemoglobin of about 85 to 90.

We want to know whether there is enlargement of the spleen, by mapping out by percussion and palpation. Percussion is uncertain, but palpation on the contrary is reliable. We want to know roughly something of the size of the liver, whether it is materially enlarged or tender. I can feel the lower edge of the client's liver about one and one-fourth inches below the costal margin. I can recall the day that such a finding would be noted as pathological.

One should go over the epigastrium and the appendix; palpate the kidneys and follow the gut around. In most individuals who are constipated, one can pick up tender areas along the large bowel, or palpate a spastic or a distended colon. We will pass an examination of the genitalia and rectum.

Flat feet are quite important from the efficiency standpoint of the individual. The reflexes that are important to go into are the tendon reflexes, the Babinski, Oppenheim and Gordon and the abdominal reflexes. If you do not get disturbance in the above reflexes the probabilities are strong for a normal central nervous system insofar as gross organic disease is concerned.

After one has finished his survey of the case, there comes the question of setting down what observations have been made and the conclusions, as a matter of future record. The advice to the patient depends upon what has been found. If conditions of disease are found, the client ceases to be a client and becomes a patient. If there is no obvious form of disease, it becomes a question of giving the man what advice you can that he may better adjust himself to his environment, and thereby become more efficient, happy and healthy.

—630 Bankers Reserve.

CLEFT PALATE*

WILLIAM L. SHEARER, M. D.,
Omaha, Nebraska.

After listening to the splendid addresses on gastrointestinal diseases, different kinds of which you are able to diagnose but 33 1/3 per cent, and 12 per cent of those are wrong, I shall try to present a subject on which the diagnosis is not so difficult, and you can diagnose all of them.

I am going to present this afternoon practically but one type of cleft palate, one which has given me considerable trouble, and in former years was not so well handled by a majority of the men; and possibly the same is true today. I refer to the complete cleft of the maxillary bones.

The time for surgical intervention in these cases is not well understood, due to the fact that our books dealing with this subject are at such great variance. There are men who tell us they operate a lip and place the bones in apposition, which is not true.

Some forty years ago a noted surgeon in New York held a child before a clinic, the child having complete cleft of the palate, involving the nostril. With his fingers he forced those parts into position. He made the statement at that time, "When a man will design an operation which will hold these parts in apposition — immobilize them and place compact bone in relationship to compact bone — he will be a great benefactor to these unfortunates." He dismissed the mother and child and they passed out.

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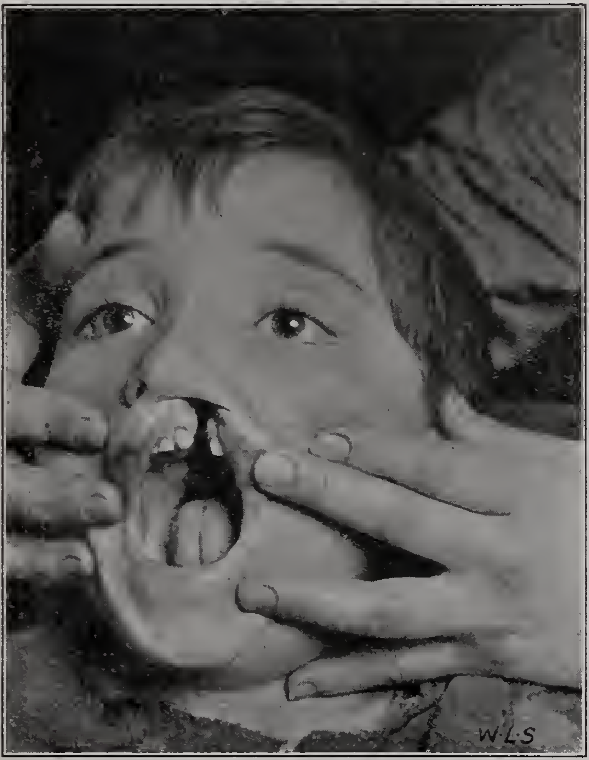
*Address given before annual meeting Nebraska State Medical Association, Omaha, May 11-13, 1926.

In that audience sat Dr. T. W. Brophy. The thought never left him. Out of the thought which that noted surgeon gave, the Brophy operation came which has made his name famous. I think it is probably recognized all over the country by men doing much surgery.

Dr. Alvarez made the remark that the majority of men who know all about gastric ulcer are the men who have presented one paper. That would be true in everything. Men doing three operations in a lifetime know all about how cleft palate should be managed. Since Dr. Brophy has made over two thousand of these bone operations, and I have made over a thousand of this type with good results, it seems to me such a procedure will probably stand the test of time.

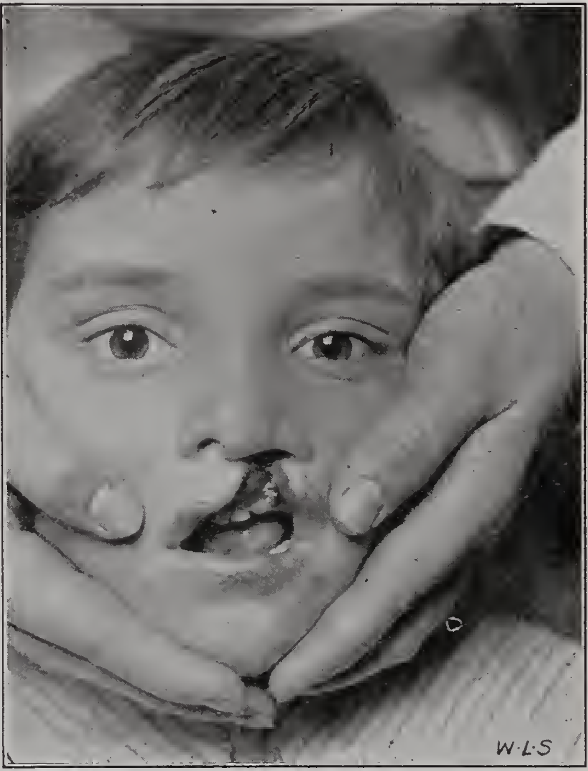
These cases should be brought to the surgeon about as soon as the child is born. I often wish I could see the babies when born. The child should be operated by the local surgeon, or taken to some one doing this class of surgery, as soon as the child is able to be moved. The child cannot nurse, anyway.



Case 1. Plate 1. Boy five years old. Showing cleft of bones. A cleft of this character should be operated at the age of from three to six weeks. Attempts had been made to close this palate before I was consulted. In cases of this character it is either necessary to employ a Greenstick fracture technic or long slow movement of the jaws into position.

The first requisite for success in this class of work is the pediatrician. We have in the Methodist hospital a record of some eighty-seven cases carried through successfully without a death. That is not due entirely to surgery by any means, but to good sound pediatrics under the care of our good friend and noble physician, Dr. H. M. McClanahan.

We come to a later stage in the same type, the little child who has had to remain at home and have an operation when two or three years of age. These children came in countless numbers when I first undertook to practice. I made a modification of the Brophy greenstick fracture operation which has been very satisfactory. Now we can take these children at almost any age and obtain a fairly normal face with a procedure I shall outline shortly.



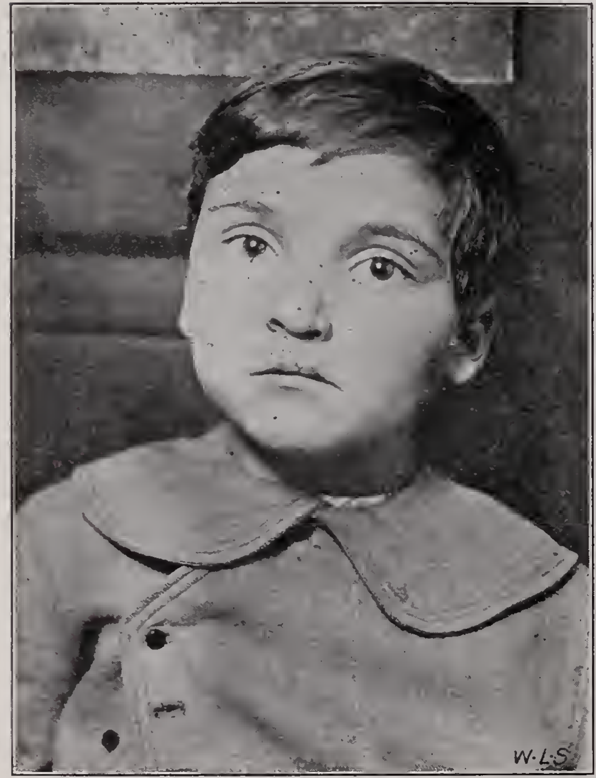
Case 1. Plate 2. Shows condition after employment of Greenstick fracture to close cleft, and the bringing of the nose into the median line of the face.

First let me impress upon every one here the all-important thing of pediatrics. Some fourteen years ago I had the temerity to read a paper on Pediatrics. One of my dear friends made the remark, "Any man who cannot feed his child, should not operate."

In the closing discussion, I asked what he did with a child when very ill, and he said, he "called a pediatrician". The only difference is, I call him first. The majority of men are not doing enough of artificial feeding to feed this type of child. It cannot nurse. The impossibility of obtaining mother's milk in smaller towns doubles the difficulties.

SLIDES

This slide represents the single cleft palate. With a cleft of this character, the distance from the tuberosity is as much greater than it should be as the distance of the cleft. The object of surgery in a great measure is to bring about function. What kind of function are we going to get? If an operation is made whereby compact bone is placed with compact bone and no consideration given to the distance of tuberosity to tuberosity, it will be a failure functionally; for we must remember the most important organ of speech is the palate. If we are going to consider the management of the palate, then its function should be given as much consideration as possible. In such instances, anyone who undertakes to correct this deformity without carrying out the principles of the Brophy operation is doomed to failure. He may close the opening, but he will not get a functioning palate.

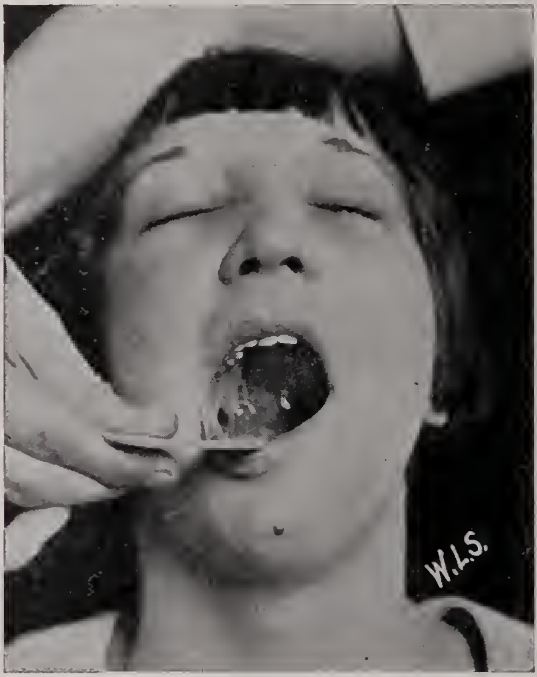


Case 1. Plate 3. Shows child after correction of the lip.

Naturally, feeling deeply for these children, and loving my old teacher with whom I spent years, when I hear men criticise his operation, it makes me feel badly because I know they are not familiar with the steps of the operation nor the technique.

I have done over a thousand of these operations myself — not that I am trying to present a large series of cases, but I have found the principles Dr. Brophy laid down are fundamental and right.

Silver wires are passed high up above the teeth, which do not destroy the teeth, and with the thumbs and fingers the bones are forced together, which may easily be done when the child is first born. They are placed in apposition with the thumbs and fingers and the wires, and lead plates are only used to immobilize the parts, not to pull them together. The thought of the majority of men is that the plates are used to pull the parts together.



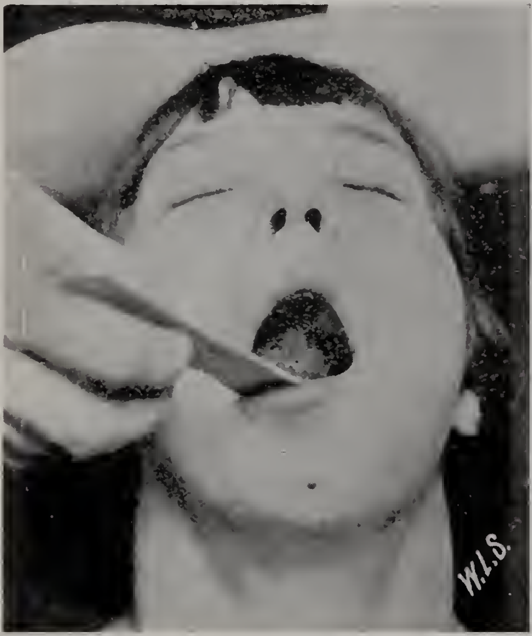
Case 2. Plate 1. Very extensive cleft of soft palate, extending into hard palate one-half inch distally to the teeth.

In this picture we have a double cleft of the palate, with a single cleft extending back through the uvula. With a type of cleft of this nature, the bones must be brought in toward each other, and the premaxilliary bones set back.

This is a type of bone operation which should be done early.

There are fifteen different types of cleft palate which have already been classified by Dr. Brophy.

When we consider the management of this type of cleft, we have the silver wires passed clear through above the teeth; then with the hands the parts are placed in position and the slack taken up, with the pre-maxillary bones set back. When the tuberosities are in proper relation, the soft palate tissue almost drops together.



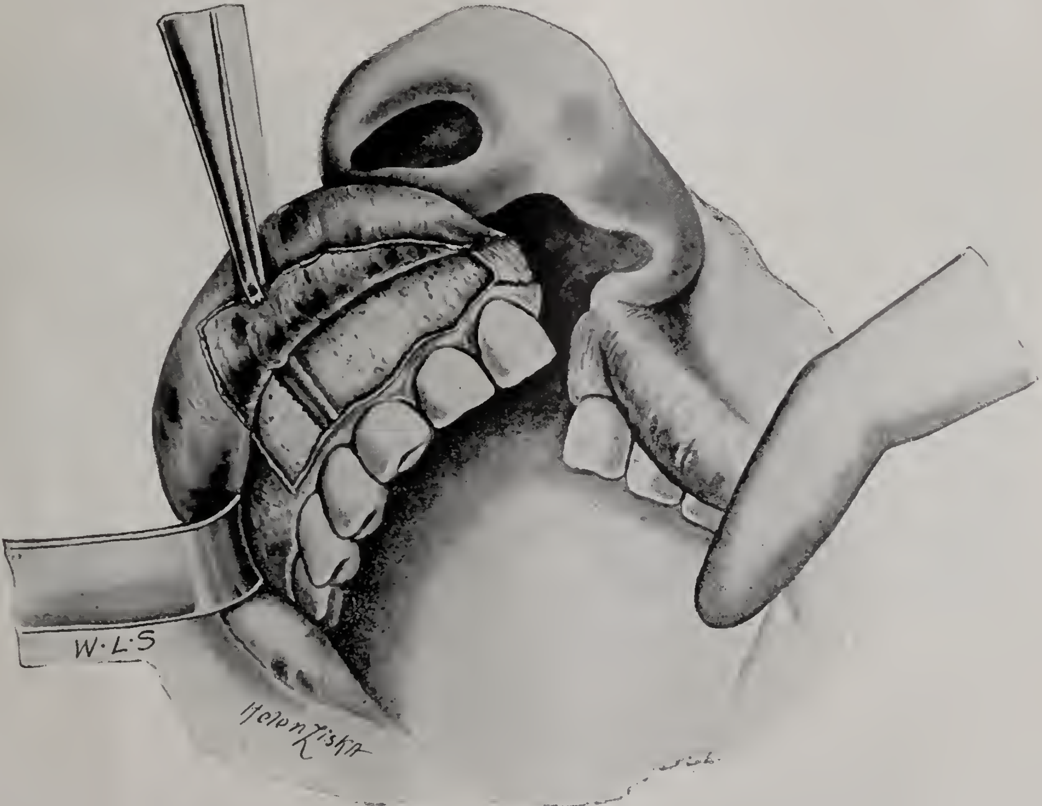
Case 2. Plate 2. Girl 18 years old. Closed with one operation, a very good functional palate. periosteal flaps brought back and sutured with horse

The majority of children are sent in when from six weeks to three months of age, and it makes it difficult to place them in the position they belong.

I had eleven cases of this type come in. They have all been operated. I will show you two or three of them.

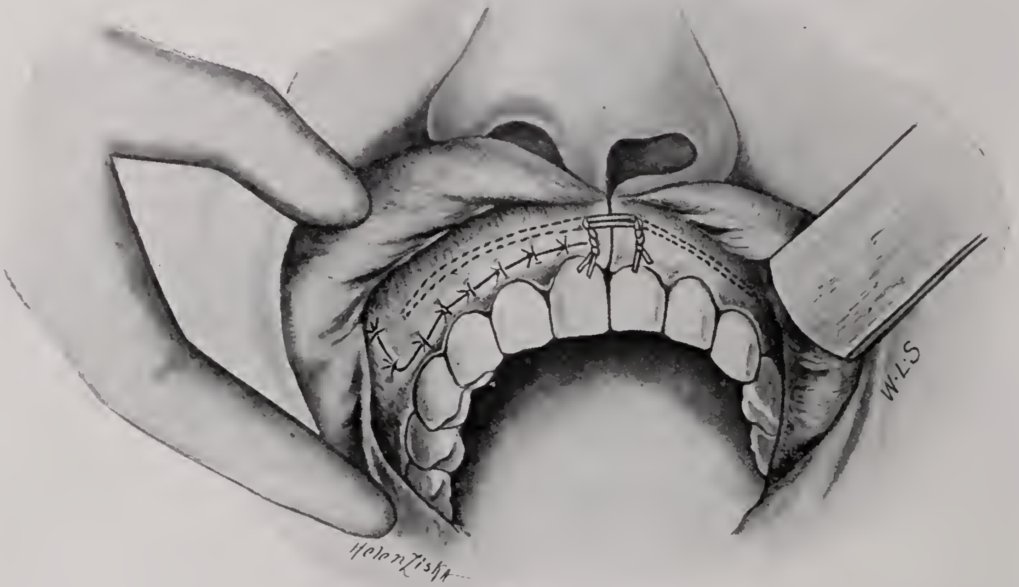
After the alveolectomy flap, we make an incision of about one-eighth of an inch above the cemento-enamel junction of the teeth, leaving enough muco-periosteum to suture; then reflect it upward, carrying the infraorbital nerve out of the way, and chisel through carefully to avoid the loss of teeth. When managed after this plan, the jaw is fractured manually. It will not fracture into the orbit if properly done. The long half of the fracture is manually moved over, and the flap is returned to position. The trouble with the old greenstick fracture was we were doing it blindly. With this newer method, we have an open view of the parts. The fragments of bone that would push upward when the bone was broken have been eliminated by this open-view method. With the return of the muco-periosteal flap, they heal by primary union.

This slide shows a boy fifteen years old, with



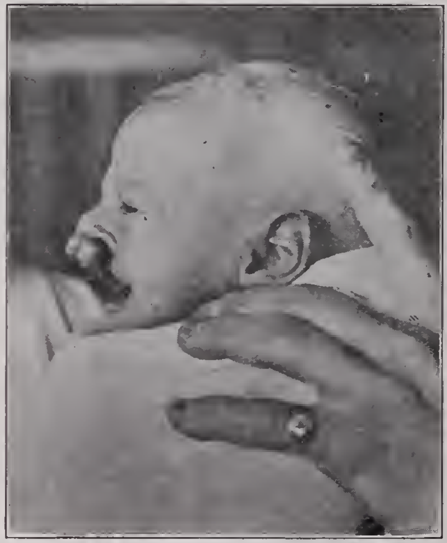
Case 4. Plate 1. Diagramatic of modification of Brophy greenstick fracture operation.

his nose to the right. Compact bone was placed with compact bone, without the loss of the teeth. The nose is brought manually into the middle of the face.



Case 4. Plate 2. Illustrates wires in the mucoperiosteum flaps brought back and sutured with horsehair.

This is a boy with the same type of trouble. These children had had plastic operations unsuccessfully made before I saw them.

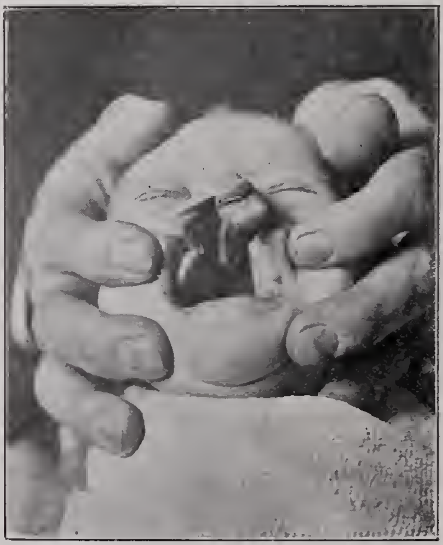


Case 10. Plate 1. Side view of a very extensive double cleft of the hard and soft palate with premaxillary protrusion.

Many of these cases operated have a very short palate. One can pick up the palatopharyngeal muscle and utilize two-thirds of it and carry the palate down the throat, and these children can speak quite well. I have one in the hospital now for whom I made this operation, using the muscles of the throat to lengthen the palate.

Here is a photograph of a girl forty-four years of age. We closed the palate in one operation.

This is a child with a double cleft palate with a premaxilliary protrusion.



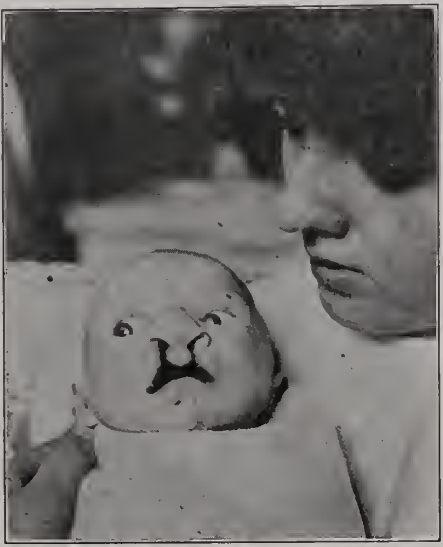
Case 10. Plate 2. Front view of the same case.

This is a photograph of the same baby after four operations.

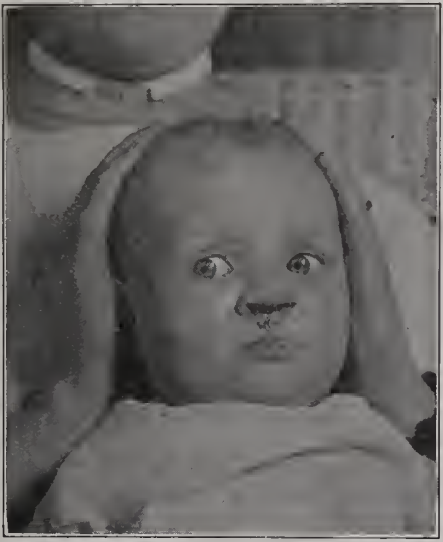
Here is a boy of nineteen with an unfortunate lip.

This picture shows him after operation, one year later. Notice the psychological change in these young people.

This is the operation Dr. Brophy does that has made him famous. I am not claiming credit for any of this. If I am doing anything at all, it is due to the teachings of one man. I feel many times we are rather derelict in our duty to the older men who have made possible some things we are able to do today. All of this work of the bones must be traced back, and I think we should take time here to pay a tribute to an old Master like that.



Case 10. Plate 3. First operation. Placing the premaxillary bones into position to form a normal arch.



Case 10. Plate 4. After correction of lip.

(At this point Dr. Brophy's portrait was thrown on the screen, amid applause.)

DISCUSSION

H. M. McCLANAHAN, M. D., (Omaha): In my work, these patients have attracted my attention. I will not say how many of them I have seen in the last several years, but perhaps fifty.

I want to call your attention to what Dr. Shearer has given us credit for — the preparation of the infant before the operation. I recall an infant I thought was in good condition, and so advised, and it went bad on the table. That was due to an enlarged thymus, relieved by two x-ray treatments, and the child was successfully operated upon afterwards.

Some months ago a child was born out in the state with a cleft palate. It was starving. They said, "What shall we do?" I said, "You had better send it in," which they did.

The feeding of these cases is important. Of course, they cannot nurse. At the Methodist hospital, we have found a rubber bulb the most practical, and they wear out two a week. Put the milk onto the back part of the tongue. They have to swallow it. The direct feeder we use in some cases.

In those cases I have seen, we try to get the infant gaining in weight, because no infant should be operated on while losing in weight. As soon as we get them gaining, Dr. Shearer does his primary operation.

Another important point is after the lead plates are applied, keeping the mouth closed, and do it in such a way as not to interfere with the stitches. We had two cases where skin operation was necessary because there was some tension on the stitches.

We instruct the nurse to use a rubber bulb, and wash the mouth out with an alkaline solution. Wrap the cotton around the finger, because we have an eye in the point of our finger, and it is more delicate than using the swab.

Don't let them nurse or suck until there is complete and permanent union. I think in one case we were to blame because we let the infant suck too soon and produced some traumatism.

I have seen a number of the results Dr. Shearer has shown upon the screen, and I would supplement his remarks that those cases be seen very early — in the first three or four days.

The second point is, don't let the child be starved or become dehydrated during those days for lack of milk or water. Get a little rubber bulb and see he gets food.

E. WILLARD POWELL, M. D., (Omaha): For a great many years I have known Dr. Shearer. I know how patiently he has tried to remove from the community in which we live, and far beyond, the most horrible looking sights I have ever seen. I think he has not been half appreciated many times. I have heard a lot of damnable things about him, of which I do not believe one. I have heard the nice things about him. I am going to say a few nice ones. I think when we have a man who does so many nice things and is so charitably inclined to do them, some public expression of appreciation should be given him.

I have heard many things about his tremendous fees, until I am sick and tired of it. I know many of his cases require three to five operations to get results, and I know he will do them for the poor, unfortunate individual and never receive a penny. And where there is a rich man who is able to pay for the improvement of these things which are so unsightly, he has based his charges accordingly. Such a case carried to a mother would certainly be a fine thing for her to have that impression!

Therefore, I want to compliment him on his paper and upon his work, and then I want to do something more; because it is rare we have a young man who has followed the teachings of his preceptor, who really appreciates all he did for him, and then gives him all the credit. I want to thank Dr. Shearer for that little part of his speech, if nothing else.

DR. SHEARER, (closing): I am human, Dr. Powell. It is a little hard for me to close the discussion after your remarks, because I do not deserve them; but I thank you. You are really too kind.

I want to impress upon you the thing Dr. McClanahan brought out in his discussion. Surgery, after all, is a mechanical thing. If it is a mechanical thing, then some sort of mechanics should come to us if we study and labor hard. But back of all this, I am sure the most important element in lowering the mortality in these cases is not the surgeon, but to pre- and post-operative feeding and care.

Some day possibly we shall know more about the chemistry of the human body and the blood, so that we shall be able to do more than we are able to do today. These children all have rickets if not placed in the hands of a pediatrician first. When they have rickets, they are more difficult to deal with. The minute the knife goes into the tissue, I know if it has been fed properly.

The one important thing is: If these children are going to have a fair chance in life, they must be placed in the hands of a pediatrician. The percentage of such children in the practice of the average physician is so small he has not sufficient knowledge of how to handle them. He may have one or two cases in a lifetime. It means so much to the mother and child. These children should be placed in the hands of a pediatrician, because certainly 75 per cent of the success of these cases is due to him.

MODERN ASPECTS OF NUTRITION: THE PATHOLOGY OF MALNUTRITION

19. The Dietetic Treatment of Peptic Ulcer.

VICTOR E. LEVINE, M. A., Ph. D.
Professor of Biological Chemistry and Nutrition, School of Medicine, Creighton University, Omaha, Nebraska.

INTRODUCTION

In the last three papers we discussed newer angles in the treatment of acidosis. We attempted to show that alkali therapy at best offers but symptomatic relief and that it does not strike at the cause. We pointed out the tendency of clinicians to do away with its use or to use it cautiously. As an example of the present trend we mentioned the successful treatment of diabetes and of diabetic coma without resort to alkali medication.

Perhaps the greatest abuse of alkali therapy is to be found in the treatment of simple hyperacidity and in the treatment of gastric or duodenal ulcer as practiced by layman or physician. In this respect it is of interest to quote Kaufmann (1916)⁽¹⁾: "One of my patients for over 40 years took religiously every day about six tablespoonfuls of bicarbonate of soda, averaging between two and three pounds per month. He was a very intense worker, at the same time a very hearty eater, particularly fond of all sorts of delicacies and liquors, usually winding up the day's toil by drinking three or four quarts of beer. He maintained that the conscientious use of bicarbonate of soda, taken on a fasting stomach before each meal and before retiring, enabled him to work persistently without being unduly annoyed by gastric discomfort, while at the same time indulging to his heart's content in whatever he was fond of having on his table and plenty of it. And so it is with many to whom the relief afforded by alkalies gives the pretext to perpetuate their errors in diet and life."

The temporary good obtained from alkali is apt to cause one to forget the more serious nature of the gastro-intestinal upset and the sad consequences of its neglect. A recent example of the disastrous effect of the overdosing of alkali as a measure of relief is to be found in the untimely death of Rudolph Valentino. According to one of his attending physicians, this popular film hero lost valuable time in tinkering with large doses of sodium bicarbonate, instead of seeking early help from physician or surgeon.

ALKALI, THOUGH NEUTRALIZING TEMPORARILY, PRODUCES A SECONDARY STIMULATION OF ACID SECRETION

The almost universal use of alkali for digestive disturbance ahs given it a reputation for good that laboratory and clinical research cannot support. Fowler, Spencer, Rehfuss and Hawk(2) have convincingly demonstrated that the stomach tends to bring its contents to a normal acid level, regardless of the reaction of ingested substances, that is, it lowers acidity when strong acids are introduced and raises acidity when alkalies are given. Von Leube(3) observed that bicarbonate of soda, although neutralizing temporarily, gives rise to a secondary stimulation of the acid secretary glands. Du Mesnil(4) found that feeding to a patient increasing doses of sodium bicarbonate gave as a result increasing daily acidity. Bourget(5) was fully convinced that the alkalies caused eventually augmentation rather than diminution of gastric acidity.

Boyd(6) also showed that neutralization of gastric acid brings temporary relief followed by a renewed increase of secretion, caused perhaps by the irritating effect of the salt produced by the interaction of acid and alkali. In dogs he found that the feeding of sodium bicarbonate in amounts up to 1 gram per kilo of body weight per day, produced no diminution in the average quantity or in the acidity of gastric juice. The rate of secretion became more irregular, and the occasional depression which occurred was usually accompanied by symptoms of irritation. The diarrhea resulting could be controlled by combining sodium bicarbonate and calcium carbonate in equal amounts. Secretin was not appreciably depressed until the dosage exceeded 3 grams of the mixture per kilo of body weight per day. Such dosage of alkali produced considerable diminution in the content of blood chloride. The depression resulting from excessive administration of alkali did not outlast the period of administration. Hypersecretion, however, continued usually for several days following the discontinuance of the alkali.

CROHN'S FINDINGS WITH ALKALI MEDICATION

The experiments of Crohn(7) esrve to illustrate again the effect of the administration of alkali. This investigator studied the effects of antacid medication on gastric acidity and on gastric secretion. These effects he studied by means of fractional analysis of the gastric contents.

In one of his experiments he administered a 2-gram dose of sodium bicarbonate to a patient three-quarters of an hour before the onset of digestion. In 15 minutes the acidity dropped from 46 to 22 per cent. Within another 15 minutes it had rebounded to 78 per cent, which level it maintained for one-half hour and then it slow-it maintained for one-half hour, and then the acidity slowly declined. The total depression of acidity following the taking of bicarbonate of soda was for the duration of 15 minutes. The secondary augmentation, however, was for the duration of the entire portion of the digestive cycle. On administering to another patient twice the dose of sodium bicarbonate (4 grams) the reaction of the stomach was so rapid that the very first specimen of chyme withdrawn 15 minutes after taking alkali showed an increase in the acid titer. Thus Crohn demonstrated the evanescent action of sodium bicarbonate, occasionally confirmed by the personal experience of those who have employed the compound for the relief of heartburn or hyperacidity.

Crohn also tested out other single alkalies, magnesium oxide and bismuth subnitrate, as well as some of the therapeutic mixtures of alkalies commonly employed. One of his experiments with magnesium oxide is interesting to relate. He gave a patient 0.8 gram of this compound. Fifteen minutes after, the gastric analysis gave a fall in acidity from 20 per cent to 10 per cent, and in the next fifteen minutes the acidity fell from 10 per cent to 5 per cent. In the course of the next three fifteen minute periods the irritative action of the alkali set in, and the titer rose rapidly to 26 per cent, then to 38 per cent, and finally to 88 per cent. What had been gained by the initial neutralization was more than compensated by the subsequent increase in acidity. Mixtures of magnesium oxide, bismuth subcarbonate and sodium carbonate did not give such marked secondary increase in gastric acidity; nevertheless, they failed markedly to keep down the acid content of the stomach.

All in all, Crohn concludes that it seems questionable whether prolonged use of alkalies leads to any permanent diminution of the acid secretion of the stomach. On the contrary he believes that the opposite effect is likely to be produced. He maintains that lasting relief is not to be sought in antacid medication, but that it is more likely to be found in the proper regulation and restriction of dietary errors as well as in the general control of the mode of living of each individual patient.

LOCKWOOD AND CHAMBERLAIN'S FINDINGS

Observations similar to Crohn's have also been made by Lockwood and Chamberlain(8). They report that neither sodium bicarbonate, calcium carbonate, magnesium oxide, or bismuth subnitrate seem to affect the evacuation time of the stomach. This finding does not seem to support Cannon's conception of the acid control of the pylorus. Lockwood and Chamberlain also demonstrated that administration of alkali does not necessarily bring about a lowering of gastric acidity. As a matter of fact, their actual figures showed that after sodium bicarbonate, the acidity rose to a higher point than in the controls in about one-half of the cases after calcium carbonate, in about one-fourth of the cases after magnesium oxide, and in only two of the cases investigated after the administration of bismuth subcarbonate.

THE CLINICAL EXPERIENCES OF HARDT AND RIVERS ILLUSTRATE THE DIFFICULTY IN CONTROLLING GASTRIC ACIDITY THROUGH ALKALINIZATION

The foregoing discussion leads us to think that in a certain group of patients with hyperacidity or with peptic ulcer it would be difficult and almost impossible to control gastric acidity. That this is the case is attested to by clinical facts. Furthermore, when an attempt is made to control the acidity of such patients with alkali, symptoms of toxemia usually develop. We are indebted to Hardt and Rivers(9) for the excellent investigation of the toxic manifestations following alkaline treatment in peptic ulcer. In their study carried out at the Mayo Clinic, they observed 48 patients and divided them into three groups as follows:

Group 1. This group was made up of 16 patients who were placed directly on the Sippy treatment and who remained normal throughout the course of treatment.

Group 2. This group consisted of 16 patients treated according to the Sippy method by hourly feedings of milk but without alkali. Since some patients develop a distaste for milk and complain of nausea, the milk diet would either show up as a factor or be eliminated as a factor in complicating untoward symptoms.

Group 3. This group numbered 16 patients who showed toxic symptoms under the Sippy treatment. Those in this group received daily 70 grains of sodium bicarbonate, 50 grains of heavy calcined magnesia, 105 grains each of calcium carbonate and bismuth subcarbonate.

In Group 3 we deal with a number of patients whose gastric acidity persistently remained more or less uncontrolled, and who showed definite symptoms of toxicity any time during the course of alkali treatment, within four or five days after the alkali powders were given, or not until the third or fourth week.

CLINICAL EVIDENCE OF TOXICITY

The toxic responses manifest themselves in many ways. The first symptom is a distaste for milk. Headaches in some instances may come on almost simultaneously with the dislike for milk. At this stage it may be difficult to persuade patients to take their powders which, strange to say, does not seem as distasteful as the milk. With the increasing dislike for milk, nausea becomes more pronounced, and the patient vomits on making efforts to take food or even water. This vomiting may be checked with difficulty. Gastric lavage is usually efficient in this respect.

Headache is another early symptom. At first there is a dull feeling and a sensation of lightness in the nape of the neck or occipital region. The pain may be more severe, and may spread to the temporal region. Headache persists throughout the entire syndrome, and may become more severe. It is the last symptom usually to disappear. Dizziness is a common symptom even in the milder cases. The patient first complains of vertigo and light headedness, when an attempt is made to walk or move. Turning the head from the pillow may even bring on marked vertigo, nausea, and vomiting.

Still another common symptom is to be found in the aching pains in joints and muscles. Weakness, at first slight, may become marked and may give way to absolute prostration. The respiration becomes slow, the pulse is slightly accelerated, the perspiration is profuse, and the face flushed. The patient in bed may appear limp, apathetic, very drowsy, and is aroused with difficulty.

LABORATORY EVIDENCE OF TOXICITY

Laboratory findings support well the clinical evidences of toxicity. During the toxic manifestations described the blood urea increased from 50 to 296 milligrams per 100 cc., and the creatinine from 2 to 5 milligrams. The carbon dioxide combining power of the blood of normal patients was 55 to 70, while in those showing symptoms it was 65 to 117 volumes per cent. Albumin and casts were found some time during the course of treatment in all of the sixteen patients under alkali. The gastric contents during the period of toxemia usually showed up normal or hyperacid.

It is evident from the laboratory findings that the symptoms of varying degree of toxemia resulting from alkalinization is associated with renal involvement as shown by the increase in blood urea and creatinine and by the presence of albumin and casts in the urine. This renal involvement, Hardt and Rivers found to be present even when there was no clinical or laboratory evidence of nephritis or nephrosis at the beginning of treatment. In conformity with this observation they found that alkali medication precipitated definite symptoms of toxemia in peptic ulcer, when the patient also had renal disease.

The ill effects of the Sippy treatment in the patients in Group 3 were due to the alkali administered and not to the food. When the symptoms of toxemia reached the point of nausea and vomiting, the alkali was stopped and the patient put on two hour feedings, which consisted of milk, cereals, eggs, fruit juices and meat broth. Within twenty-four to forty-eight hours the distressing symptoms almost invariably disappeared.

EXPERIENCES OF PROMINENT GASTRO-ENTEROLOGISTS WITH ALKALIS

The case against alkali would not be strong without some support from some of our prominent gastro-enterologists. Smithies(10) says: "The exhibition of large quantities of alkali is unnecessary. Their use is certainly unscientific.

Large quantities of alkali, according to Pawlow and to our clinical and laboratory experience, create pernicious increases of gastric acid and of mucus, and generally demand relief by lavage. Moreover, we have shown that many gastric ulcer cases do not exhibit hyperacidity or hypersecretion. It is true that the stomach can neutralize large quantities of alkali if compelled to do so, but there is no physiological reason why it should be called upon to do this overwork. It will be remembered that the normal habitat of gastric epithelium is an acid or at the best a neutral medium. If these epithelial cells are called upon to live in an excess of alkali, they live as it were in the presence of a foreign body. Experiments in artificial tissue growth have shown that cell proliferation is retarded by hyper-isotonic alkaline solutions. Hence over-alkalinization may prevent healing."

Smithies goes on to state that the biologic system makes unsuccessful attempts to combat excessive alkali. In his own words again: "Attempts at protection from this foreign body (excess of alkali) are shown (1) by the acid-producing glands oversecreting and (2) by the mucoid degeneration of physiological fatigue, which results in the throwing out over the secretory glands of a protective layer of mucus. The vicious cycle thus formed results in enormous secretion of acid and mucus and is doubtless at least a partial explanation of the so-called hypersecretion associated with gastric ulcers, particularly when such are treated by the over-alkalinization method."

To compensate for this hypersecretion, Smithies reminds us, we are forced to resort to frequent washing of the stomach or to prescribing greater quantities of alkali in order to overpower the defensive mechanism of the stomach and to produce fatigue or exhaustion of the acid-secreting glands. In order to insure comfort patients who are treated for ulcer by alkalinization very often require frequent gastric lavage. This frequent lavage is a very disagreeable feature of alkali treatment. It disturbs the patient's peace of mind. It also brings about vigorous gastric contractions which last during the manoeuvre as well as for a long time afterward. *Gastric lavage, except in exceptional cases, must be condemned because it is contrary to the fundamental requirement of healing, namely, rest of the affected part.*

Let us hear from another gastro-enterologist. Alvarez(11), of the Division of Medicine at the Mayo Clinic, as late as July twenty-first of this year, delivers himself as follows with regard to alkalinization in duodenal ulcer: "Occasionally I have found cases in which in addition to the diet, the usual mixture of magnesia, sodium bicarbonate, and bismuth subnitrate, were helpful, but in the last thirteen years I have not prescribed it more than five or six times." Alvarez believes that much can be said for alkalinization. Nevertheless he himself discards alkali and finds in all the thirteen years he refers to, that his dietary regime, which we shall discuss later, is so satisfactory that rarely do his patients feel the need of going back to their soda.

CONDITIONS AGGRAVATING THE SYMPTOMS OF PEPTIC ULCER

Whatever the cause of peptic ulcer, the final result is the autolysis or self-digestion of circumscribed devitalized areas of the gastric or duodenal wall. After the development of the ulcer external and internal conditions may aggravate the pathological situation. Further injury in the region of the ulcer may result from (1) chemical action of the acid digestive secretions; (2) mechanical irritation from peristaltic movements and from particles of food scratchy in physical nature or difficult to digest; and (3) degenerative changes in the gastro-intestinal mucosa incident upon a diet not nutritionally adequate. By such diet we do not refer merely to adequacy in calories but also with relation to superior protein, fat, carbohydrate, water, inorganic salts and vitamins. Robert McCarrison(12) in a series of brilliant researches has demonstrated conclusively that faulty diet leads to marked degenerative changes in the gastro-intestinal mucosa and to ulcer formation.

COLLOIDAL ALUMINUM HYDROXIDE AS AN ANTACID

The ideal treatment for gastric ulcer should aim to accomplish (1) protection of the ulcer from injury; (2) healing of the ulcerous area; and (3) maintenance of the patient's nutrition. With regard to protection and healing, it is necessary to give the stomach a maximum amount of secretory and motor rest. This can be brought about by feeding through routes other than the mouth, by the use of foods that do not remain too long in the stomach, that are easily digested, and that do not stimulate to excessive peristalsis or to excessive secretion of acid. With regard to nutritional maintenance we must take care to prevent loss of body weight, to supply sufficient calories, to include in the food prescribed the six vitamins known at present, and to prevent loss of calcium, magnesium, phosphorus, sodium, potassium, iron and iodine by supplying in the solid food and in the fluid ingested the amount daily required.

CONTRA-INDICATIONS FOR ALKALI IN THE TREATMENT OF GASTRO-INTESTINAL ULCER

The use of alkali in peptic ulcer is contraindicated. Alkali does not afford protection to an area of ulceration, because it serves to increase peristaltic unrest as well as gastric secretion of acid. It does not aid in the process of healing, for it has been experimentally shown that cell proliferation is inhibited in a strongly alkaline medium.

From the standpoint of nutrition(12), alkali is also contra-indicated, for it brings about digestive disturbances which interfere with absorption and assimilation of food. Ingestion of sodium bicarbonate causes annoying accumulations of carbon dioxide with resultant gastric retention or painful belching. Alkali disturbs the bactericidal power of the gastric juice by neutralization of its acid. Organisms may thus freely enter the gastro-intestinal tract and produce products of fermentation and putrefaction, which may irritate the large intestine and cause diarrhea. Alkali prevents the digestion of protein in the stomach. It disturbs the digestive processes in the small intestine, for it tends to neutralize the gastric acid, one of the functions of which is to convert prosecretion of the duodenal mucosa to secretin, which circulating in the blood, excites the liver to secrete bile, and the pancreas to secrete pancreatic juice. Wohlgemuth(13) has proven experimentally that alkali diminishes the flow of pancreatic juice. It must be remembered that this secretion is instrumental in the digestion in the small intestine of protein, starch and, in conjunction with bile, in the digestion of fats.

Alkali disturbs the acid-base equilibrium in body fluids and tissues. Alkalinized fluid bathing the duodenal mucosa causes the precipitation of inorganic iron compounds, of calcium and magnesium phosphate. Alkali, therefore, retards the absorption of calcium and magnesium, and possibly of iron. A number of investigators, Steenbock, Hart, Sell and Jones(14), Irving and Ferguson(15), Orr, Holt, Wilkins and Boone(16), have demonstrated a definite relation between acidity in the small intestine and the absorption of calcium. Haldane(17) observed that ingestion of sodium bicarbonate lowered the serum calcium.

Furthermore, the ingestion of alkali raises the pH of the blood. A blood with a pH well on the alkaline side is a blood which lowers the ionization of serum calcium. It will be recalled that it is not molecular calcium but ionic calcium that serves an important function in the process of blood coagulation, in regulating muscle contraction, and in maintaining neuro-muscular equilibrium.

Alkali interferes with the oxidation of carbohydrate. This fact has been demonstrated by Haldane(18) and his co-workers, and by Hubbard and Wright(19). In the diabetic it, therefore, lowers the carbohydrate tolerance, thus increasing the formation of beta-hydroxybutyric acid, diacetic acid, and acetone. The depression of the oxidation of carbohydrate induces poorer nutritive assimilation as a result of the lessened utilization of fat and of the lessened degree of protein sparing.

In addition to the disadvantages resulting from the use of alkali, we must not forget that sodium bicarbonate is apt to cause edema. It should, therefore, be administered with extreme care to patient suffering or liable to suffer from renal damage. It is also apt to give rise to symptoms of tetany. Sodium bicarbonate with relation to edema and tetany has been fully discussed in the November issue of this Journal, and the reader is referred for further details to the article therein(19).

Several workers, Munzer(20), Starkenstein(21), and Greenwald(22), maintain that sodium poisoning is the underlying cause of the toxic manifestations of sodium bicarbonate. It is this reason perhaps that has led clinicians to alkalinize with mixtures of sodium bicarbonate, calcium carbonate and magnesium oxide. Mixtures of salts comparable in composition to the inorganic content of blood are now put up by pharmaceutical houses. Their use is strongly indicated in combating acidosis and is to be preferred, as we shall see later, to the ordinary alkali medication in conditions of hyperacidity. Guillermin(23) claims that bicarbonate in conjunction with phosphate yields clinical results better than those obtained with bicarbonate alone, although the mixture does not bring permanent relief.

In connection with the use of the common alkalies in peptic ulcer, we must not forget to mention the findings of Roch(24), reported at Paris in 1922 before the French Congress of Medicine, with relation to the property of colloidal aluminum hydroxide as an antacid. He stated that in his hands this compound in colloidal form has proven the antacid medicament par excellence, and that it was quite superior to bicarbonate of soda, magnesia, subnitrate of bismuth, or other acid-neutralizing compounds.

Guillermin(25), Roch and others put great hopes in colloidal aluminum hydroxide. It is an amorphus powder soluble in water. In the presence of dilute hydrochloric acid it gelatinizes. This gelatinization is not a chemical reaction involving neutralization, but a physico-chemical phenomenon. The thick translucent gel holds the acid in physical, not in chemical combination.

The advantages claimed for colloidal aluminum hydrate are as follows. It has a sedative effect upon the mucosa. It covers the wall of the stomach with a layer of gelatinous mucilage. This layer exercises a mildly astringent action, and a distinct healing effect due to the removal by absorption of acid and other irritants. Aluminum hydroxide does not affect the normal process of nutrition, for it does not hinder proteolysis nor cause destruction of any essential dietary factor. Neither does it interfere with the anti-putrefactive function of the gastric juice. Colloidal hydrate of aluminum finally is evacuated from the lower bowel together with the hydrochloric acid it has absorbed. It, therefore, actually removes excess of hydrochloric acid from the gastro-intestinal tract without resort to neutralization by undesirable alkali. The dose recommended is 15 grains taken half an hour before and half an hour after each meal. It can be taken for a long period of time without untoward secondary effects.

The drug seems to work better than the alkalies usually employed in hyperacidity and in peptic ulcer. It has but few of the disadvantages charged against the ordinary alkalies. The good results thus far reported as a result of medication with colloidal aluminum hydroxide should act as a stimulus for further experimentation and clinical observation.

TYPE OF FOOD REQUIRED IN THE TREATMENT OF PEPTIC ULCER

We have stated the conditions that must be fulfilled by an ideal dietary treatment for peptic ulcer. The food prescribed must protect the ulcer from injury. It must secure the maximum amount of secretory and motor rest. It must induce healing. It must maintain the patient in nutritive equilibrium. With these conditions as a criterion let us examine critically some of the well known dietary procedures in peptic ulcer.

THE LIMITATIONS OF DIETARY TREATMENT

Before entering, however, upon a discussion of the various dietary procedures for peptic ulcer it is well to recognize, however much enthusiasm one may hold for the efficacy of nutritional therapeutics, that dietary treatment has well defined limitations. If the ulcer causes marked obstruction at the pylorus through considerable scarring and mechanical closure, surgical intervention is imperative, not dietary medication. Surgery is also indicated if there is shown the existence of, or if there is a strong suspicion of the presence of such complications as cholecystitis, appendicitis, or perforation into neighboring tissue. A tendency on the part of the ulcer to persistent and repeated bleeding also calls for the art of the surgeon. Repeated failure of dietary procedure is another indication for surgery. Finally it may be compelling to have recourse to surgery as the only means of relief if the patient is not able to stand medical treatment, which consists of rest and proper dietetic management. This inability may be occasioned by a low financial or intellectual status, or by laziness and indifference induced by a complacent state of bachelordom.

From what has been said in regard to the imperativeness of surgery we may draw the conclusion that medical treatment should be reserved for a patient with an early case of ulcer showing slight and controllable symptoms or for a patient who is too poor a surgical risk. When surgical need is required, postponing operation on account of business, family affairs, or lack of time is a delay that should not be allowed without vigorous protest.

(To be continued.)

LOCAL ANESTHESIA IN REDUCTION OF FRACTURES

The induction of anesthesia in fractures by local infiltration, Ira Cohen, New York (*Journal A. M. A., June 19, 1926*), asserts, is a practical procedure. It is useful in patients in whom a general anesthetic is contraindicated, and is particularly recommended for the treatment of ambulant fractures. Local anesthesia has been successfully used in the following thirteen cases: fracture of the shaft of the femur, 2; fracture of the shaft of the humerus, 1; fracture of the tuberosity of the humerus, 1; fracture of the clavicle, 1; fracture of both bones of the forearm, 1; fracture at the wrist, 3; old fracture of the carpus (refractured), 1; fracture of the tibia, 1; fracture of the tibia and fibula, 1, and dislocation of the phalanx, 1. A satisfactory anesthesia was obtained in every instance.

THE DANGERS AND THE DUTIES OF THE HOUR IN PREGNANCY

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What are the duties of the average physician? The answer is to put himself before and after graduation in such a way as to feel in his heart that he has used all the ability God has given him, and all the knowledge he can acquire, to care for those who come under his control. The knowledge that he can acquire may be properly divided into two parts: Scientific knowledge in the sense of learning in all those collateral branches of medicine which indirectly bear upon actual practice and practical knowledge of how to actually care for and treat an individual who is ill.

It cannot be denied that all knowledge is of advantage to its possessor since its existence broadens the intellect and balances judgment. From the theoretical standpoint, and for that matter from the practical standpoint, a man can never know too much, but the question at issue is how much should he know before he attempts to apply what he has good and by applying it gain more, not only more in the sense of greater knowledge that he can learn from others, but more of that form that can be gained solely by experience. This knowledge is universally recognized as the greatest value, not only by medical men themselves, but by the laity which gladly pays more for experience whether it be in law or medicine, than it does for book learning. If excuse be needed for an attempt to emphasize the need for care of the pregnant woman it is abundantly found in the statistics of maternal mortality in this country today. The loss of life in pregnancy and labor is far too great, and it occurs almost altogether among young women, who are at that time of life at which they are of greatest value to society and to their own families.

That most of this loss is preventable is shown by the great variation in the mortality rates which are given for the various states, or for large cities, and those which are attained in maternities which are efficiently administered, or by competent men in private practice. Much of this showing is due to proper choice and skillful use of operative procedures, or that which may be even more frequently the case, abstenence from unnecessary and meddlesome obstetric surgery. With obstetric surgery this paper has nothing to do, nor can we expect the general practitioner to possess a comprehensive knowledge of the technic of difficult obstetric procedures. We may sometimes wish that, not possessing such knowledge, he would not attempt them.

The intelligent care of pregnancy is another matter. One of the three great causes of maternal loss of life is eclampsia. This is almost wholly preventable, or at least in all but an extremely small number of cases. Its approach is recognizable sufficiently far in advance that measures may be instituted to extricate the woman from danger. Our deficiencies in the care of pregnancy have been so far apparent to the public and to law-making bodies as to call forth such an expression as the Sheppard-Towner Bill, and to cause its acceptance by most of the states. The remedy for this state of affairs lies very largely in our own hands. The isolated doctor may protest that he has not at hand all the array of apparatus and personnel which make up the present day laboratory. This is not necessary. For the adequate care of pregnancy and for the recognition of the largest part of the complications which endanger the pregnant woman, no more is needed than a desire to safeguard her, supplemented by an active intelligence, some degree of professional energy, and such simple items of equipment as a stethoscope, a pelvimeter, a blood pressure instrument, a scale, and a simple office laboratory in which such routine tests of the urine as examinations for albumin and sugar, determinations of specific gravity, and microscopic examinations for casts and pus may be carried out. These are all that are used by the men in the great majority of their work. One may even dispense with the microscope if one is not at hand, and still afford the woman a high degree of efficiency in observations. More complicated procedures, such as blood chemistry, are used only at times and, so far as my own experience goes, are of less actual value than clinical judgment, aided by such simple means as have just been mentioned. It is quite within the power of the average physician to make a general physical examination of the pregnant patient. Yet the knowledge of the presence of a heart abnormality and particularly of any indication of decompensation may easily mean the difference between life and death. This will not be enlarged upon further than to say that a knowledge of the general physical state of the woman is an essential starting point.

The presence of focal infections should be noted and their discovery is as a rule not difficult or time consuming. The teeth, tonsils and sinuses of the skull are the greatest offenders.

The woman who harbors infection is more likely to have toxemia and I believe a little more likely to abort by reason of changes in the placenta due to blood born infection. The relation between foci of infection and abortion has recently been emphasized by many.

The relationship between weight and toxemia of pregnancy has recently been pointed out. My own experience confirms this. A gain in weight of twenty-five pounds is sufficient. Regulation of food intake should be arranged, should a more rapid gain than this be made. What is more simple than to weigh the woman at intervals on the scales which nearly every physician's office contains. Yet this precaution is but rarely used. We have often seen a woman who has been toxic in one pregnancy with an abnormal gain in weight, pass through another without toxemia, no further treatment being used than observation of weight and its control by diet regulation. Simple dietary advice, stressing the importance of limiting the protein intake, and emphasizing the value of vegetables and fruits, together with a daily water intake of two quarts, or more, should be given every pregnant woman.

This will help greatly in alleviating the constipation from which the pregnant woman so often suffers. If these fail and the addition of mineral oil is not sufficient to give relief the use of small oil enema, three to six ounces at body heat, to be retained from bedtime till morning are often of great value. No expensive material is needed, a rectal tube or a large catheter with a small metal funnel attached to it and a supply of any bland oil.

Toxemia is probably the most important complication of pregnancy, for which the physician should watch.

Routine analysis of urine and taking of blood pressure warns us of it. This should be done every three weeks until the seventh month. Every two weeks in the seventh and eighth and weekly during the ninth month. Of these blood pressure observations is the most important. On the basis of these studies we may assume the blood pressure in normal pregnancy is a trifle less than that in the non-pregnant state, or certainly that it is not increased.

It is true that cases of eclampsia occur without warning, but it is equally true that these cases are exceedingly uncommon, and can scarcely serve to excuse the appearance of the disease in a woman who has not been afforded the known safeguards against its approach. But one such case has been observed in my experience which now embraces a number of cases sufficiently large to give a very comprehensive view of the field of obstetrics.

The treatment of pre-eclamptic toxemia is simple bed rest, eliminations and restrictions of diet are often successful. While attempts are made to control the toxemia, rigid observations as to its progress should be made. Here again no complicated equipment is needed. Daily or twice daily, blood pressure observation is our rule, and while it may not be possible to have as frequent reading as this in the country practice, it is not proper to omit it altogether as is often done.

A daily urine examination, however, is not so hard to manage, as the specimen can be brought to the physician. It should be a twenty-four hour collection as it is essential to know the total output. A daily quantitative albumin estimation is simple and requires only an Esbach tube and a solution of picric acid, which can be made by anyone. The two last named observations are possible in any case. It seems wholly inexcusable today to hear, as I have recently, of a woman in town in the middle of a populous and prosperous state, who died of eclampsia, and the family afterward told me that no blood-pressure observations or urine analysis had been made. These things should not be and are nearly completely preventable. Pre-eclamptic toxemia is, on the contrary, not at all uncommon. Indeed the careless and indifferent doctor is ordinarily eliminated, intelligent people soon coming to avoid him. Hence most pregnant women are under intelligent supervision and the results are apparent. I believe most of the difficulties in the way of adequate observations are surmountable. For years in my private practice I have had no difficulty in getting patients to come a distance for observations, and when a rising pressure makes one anxious, and the reason for its necessity is made quite clear, and they will come in for a long distance. In the incidence of abortions it is admitted by all the high physicians and is usually stated that one abortion occurs to every six or seven term pregnancies. DeLee states that abortion occurs in one of every five or six pregnancies, and believes that figure would be increased when the very early ones which ordinarily are not seen are taken into account.

Adair, however, whose attention to maternal statistics have probably been as thorough as that of any one in this country, says it is one in three plus. We know that about one-half of our accidental abortions are due to embryonal defects as has been shown by the work of Edgar, Williams, and DeLee. These we cannot prevent. The remaining are somewhat susceptible to treatment. The woman who has a retrodisplacement, particularly if she has aborted before, should have it corrected in early pregnancy and held in ante-position by a pessary until it is not likely to drop backward. Immediate attention to the slightest bleeding is essential. Bed rest until no signs of bleeding have been apparent for forty-eight hours at least, and the administration of an opiate are of great value. Vaginal examination should not be done because of the risk of infection and because contact with the cervix may stimulate contractions.

One is sometimes surprised at the amount of blood which may be lost without terminating the pregnancy. Therefore, one need not be too hasty in deciding on surgical interference.

One of our daily tasks is that of advising with the woman who is vomiting in early pregnancy. This is so frequent an annoyance that the physicians must be on their guard, lest, worried by the frequent hearing of this complaint, he may fail to give adequate attention to some woman who needs it. Simple means may sometimes suffice to give some comfort to a woman who is made very uncomfortable.

We must be on guard on the one hand, lest exaggerations of the symptoms by the woman who desires to be rid of an unwelcome pregnancy may cause us to believe we are dealing with a condition of danger, and on the other hand lest too casual an attitude on our part may cause us to fail to recognize a severely toxic type of vomiting. The latter error is the less common, yet I have seen it a few times, in two of which the women were so gravely toxic that death followed in spite of prompt emptying of the uterus. Study of blood chemistry is of some value in differentiating these cases, but I assume that not all physicians are so placed as to have daily access to a laboratory capable of making studies of this sort. The woman who after persistent vomiting, begins to show an acceleration of a pulse rate, a sub-icteric tint to the skin, a slight albumin and possible a trace of fever is providing the practitioner with an abundance of clinical warning that the condition is not a safe one. DeLee's warning that it is better to interfere a little too soon than too late is a wise one. When chemical blood studies are available it will be found that in nearly all of the serious cases of toxemia of early pregnancy an increase of uric acid in the blood is found. This is by all means the most significant factor in the blood chemistry. In a larger number of observations we have found this to be true in nearly every case.

The less serious and far more common vomiting of early pregnancy is more easily managed. Usually the advice to take five or six small meals daily, instead of the usual three, will help. Dry foods should be preferred, breads, crackers, toast, cooked vegetables, cereals, stewed fruits, are retained more easily than fluids. The woman should be encourged to resist the desire to vomit. It is far easier to acquire a vomiting habit than to get over it.

Drugs are of little value. Sodium bromide and sodium bicarbonate help some women. Others are benefited by injection of corpus luteum, although I am not convinced that the results are not often due to suggestions. When severe vomiting persists it is far better to get the woman away from anxious relatives whose constant solicitude and inquiries as to her desires to eat or her ability to retain this or that form of food are far from helpful. She will usually do better in a hospital. Relatives may be kept away. An ice bag over the epigastrium seems at times to help. She is given a cleansing enema, and, thereafter, every four hours a retention enema of 180 cc of water containing 10% of glucose, 5% of sodium bicarbonate and 1 gram of sodium bromide. This continued for twenty-four to forty-eight hours, the bromide being diminished if she becomes sleepy. Mouth feeding is then begun giving cream and milk, 30 cc each, every two hours. This is increased to 45 cc each the next day, on another day 60 cc. Further increase on subsequent days if possible, and as soon as possible water or fruit juice may be given between milk feeding. Frequently after four or five days other foods may be substituted, or toast and egg for one of the milk feedings, mashed potatoes for another and so on. When this point has been reached further progress is generally easy. The physician must be something of a psychotherapist for many of these women must be built up and encouraged constantly. These measures have been used in a large number of cases and with a considerable measure of success.

I have tried to indicate, very briefly and imperfectly some of the things which years of work in my practice have shown me to be practical in importance, and which must be considered daily to anyone who is responsible for a considerable number of pregnant women. There is no field of work in which the physician may engage in which careful painstaking effort will yield a greater measure of actual tangible results. So long as the people feel that pregnancy and labor need no special attention, and so long as we physicians feel that obstetric cases are a troublesome portion of our work, the burden of which is to be evaded as much as possible, so long will mortality statistics compare poorly with those of some other countries.

If the physician can feel a real interest in this work, much of this will disappear. Further, the man engaged in it may feel that he is doing something very definitely worth while, and which, properly done, will pay him a definite reward of satisfaction.

ACUTE HEMORRHAGIC GANGRENOUS PANCREATITIS

K. S. J. HOHLEN, M. D., F. A. C. S.,
Lincoln, Nebraska.

The large amount of interest being taken in the pancreas and its relation to diabetes leads me to report this very interesting case. The anatomical structure and location of the pancreas has made it practically impossible to institute radical operative procedures.

CASE

Patient, Mrs. H. F. P., Ohiowa, Neb., referred by Dr. E. A. Harvey with a tentative diagnosis of an acute cholecystitis on November 15, 1925. Patient is 28 years of age, female, married, American, occupation, housewife.

Menstrual history is negative.

She has had three children, the youngest being six weeks old. No history of previous diseases or injuries. No operations.

She was taken suddenly sick yesterday morning with excruciating pain in the back radiating to the front of the abdomen accompanied by vomiting and a board-like rigidity of the abdominal muscles. Pain could not be checked by hypodermic administration of morphine. The same day there was a slight rise in temperature with an increased abdominal distention.

Past history is negative except that during the last pregnancy she had at times periodical spells of backache for which the doctor was consulted. She was brought to St. Elizabeth's hospital on the afternoon of the second day, a very sick woman.

Examination: Patient was a well nourished young woman. Temperature 100.2, pulse rate 110, respiratory rate 20. Patient was suffering severe pain. Inspection revealed a somewhat distended abdomen with a board-like rigidity in the upper epigastric region and marked tenderness over the entire abdomen. Both flanks were dull to percussion. Blood and urine were negative.

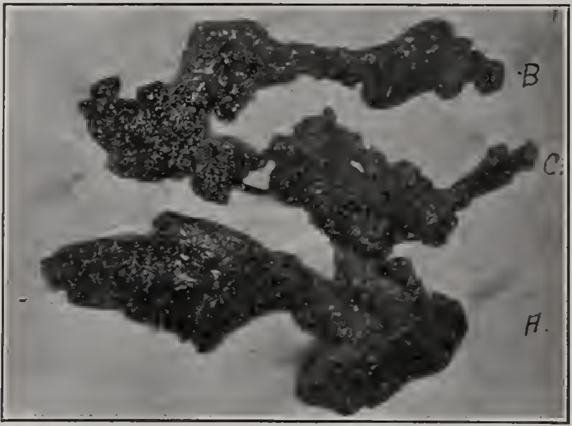
Provisional diagnosis of an acute perforated gastric or duodenal ulcer. Patient was taken to the operating room at 7:30 P. M.

Operation: Under ether anesthesia the abdomen was opened through a high right rectus incision. Upon opening the peritoneum a large amount, estimated at two quarts, of bloody serous fluid was evacuated. Gall bladder was normal in appearance and emptied readily upon pressure. A peculiarity that was noticed was a large number of white specks the size of a match head resembling pure white coagulated albumen, which studded the omentum. The transverse colon and omentum were adherent to the upper surface of the first part of the duodenum and pylorus. These adhesions were loosened, which exposed a large rent in the gastrohepatic omentum. In pulling aside the edges of this rent it exposed a bluish black looking pancreas. Into this rent a large drainage tube was placed with a liberal amount of gauze packing and the wound closed in the usual manner.

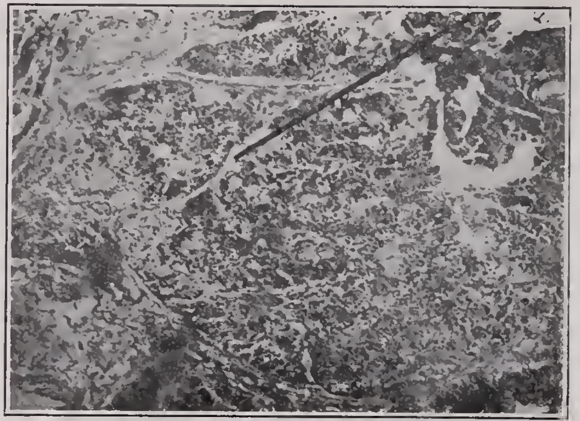
Post Operative Course: The post-operative course was rather stormy with large amount of drainage which contained pancreatic juice, debris, etc. Following this there was a continual discharge containing large pieces of necrotic material. On the 28th day of November, 13 days after operation a severe hemorrhage took place. This hemorrhage was stopped by the house doctor by packing, etc. On December 4, 1925, she had a very severe hemorrhage putting her in a desperate condition. This was also checked by packing down to pancreas through fistulous tract. Blood transfusion was done this day and 300 cc. of whole blood was transfused which improved the condition of the patient very much. On December 10th a large spongy-like mass was extracted with difficulty from the fistulous tract. Following the removal of this mass about two ounces of 2 percent mercurochrome solution was poured into the fistula tract. Following this there was a severe chill which lasted twenty-five minutes and then within one-half hour the temperature rose to 106.6. From this time on until she was discharged from the hospital, on January 14, 1926, the sixtieth day after operation, she made a steady improvement. She went home with a small fistulous opening still discharging which closed in about a month and has remained so.

Report of Dr. George W. Covey, pathologist, with sections of tissues made by him and explanation thereof, is as follows:

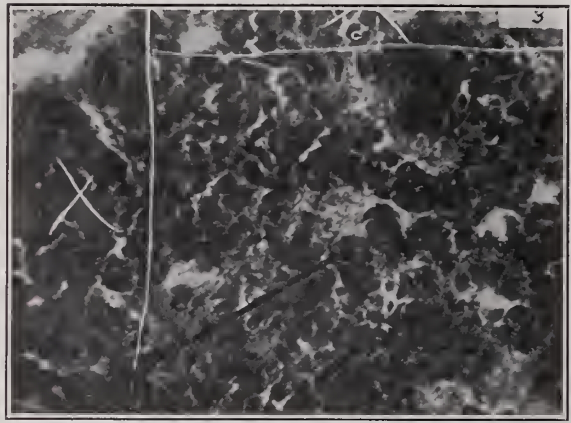
"Description of Photographs: Mrs. H. F. P. No. 1. Picture of the gross specimen. It consisted of three portions, from which some pieces had been cut, apparently for histologic examination. The weight was 55 grammes. The bulk of the tissue was dark red in color, soft, and glistened on the freshly cut surface. It was partly surrounded and held together by stringy tissues of a pinkish color, resembling connective tissue. This contained fatty portions and there was soapy appearing material in flakes over this fatty part.



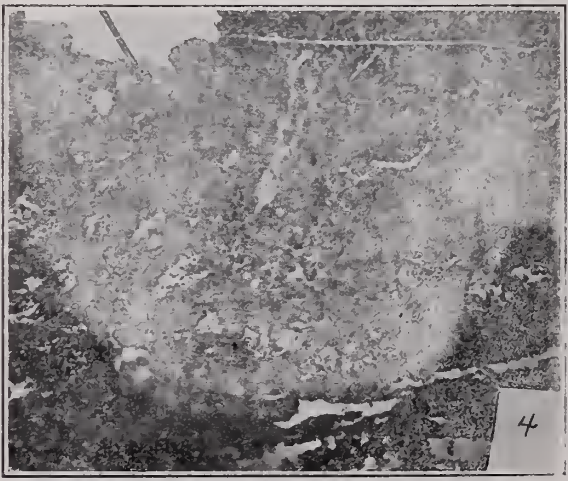
The large piece "A" measured 4½ by 1¼ by ⅝ inches. The portion "B" 4 by 1¼ by ¾ inches and the smaller portion, largely connective tissue, "C" 3 by 1 by ½ inches.



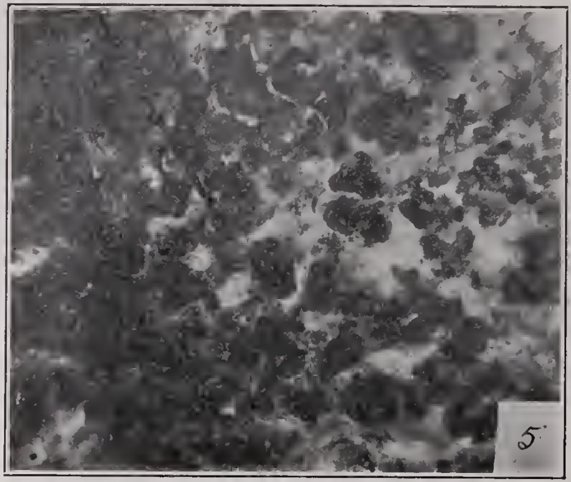
No. 2 A section of the more glandular appearing portion of the tissue, showing its arrangement in lobules separated by strands of connective tissue. The tissue of the lobule itself is quite evidently of a glandular nature, though so badly degenerated that its identity is difficult to establish.



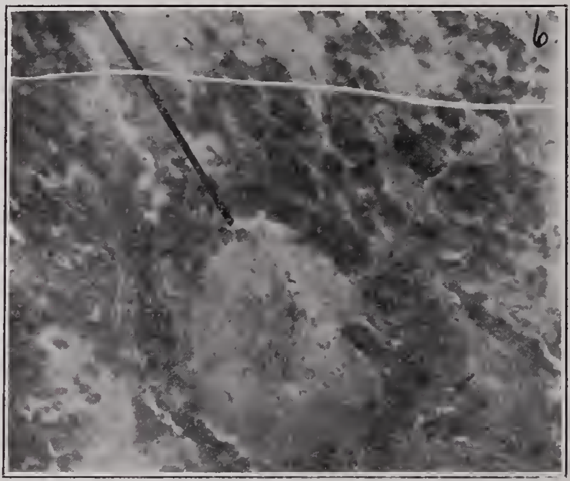
No. 3. A high power photomicrograph from the lobule shown in the previous slide. This shows the degenerating cells still clinging to a glandular arrangement in places. The degress of degeneration makes it impossible to see the details of these cells.



No. 4. Another low power photomicrograph showing the cells retaining an acinous arrangement.



No. 5. High power photomicrograph from the previous slide to show the glandular appearance of the tissue.



No. 6. The remains of what appears from its size, shape and position in the tissue, to have been an Island of Langerhans.

The gross appearance, of this tissue, the portion of the abdomen from which it came, the pathology observed by the operator and finally the histologic appearance lead to the conclusion that it is partially degenerated pancreatic tissue."

CONCLUSIONS

Repeated examinations of the urine during her stay in the hosptial were negative, no sugar being found at any time. Several examinations in the last week or ten days shows a normal urine.

We made the observation that pouring the mercurochrome solution in the abdominal cavity produces the same reaction as the intravenous one.

"Fully 80 per cent of diseases of the eye, outside of refractive errors, have a cause outside the eye, and we are incapable of ascertaining what it is, and if we could, we are not capable of caring for the condition."

FRACTURE AT SEAT OF AN OLD OSTEOMYELITIS. FRACTURE AT LOWER END OF FEMUR*

C. A. HULL, M. D.,
Omaha, Nebr.

These cases are not of special interest, but run along the line of those which are being presented:

Case 1. This gentleman when five years old had an acute case of osteomyelitis which would close and open until the present time. The 27th of April, last year, he fell and broke his leg at the seat of the old osteomyelitis, there being a sinus present when he broke it. In the healing, the skin become detached, so that we had an area 4x4 with no skin at all. The ends of the bone were exposed. It looked like a good case for amputation. We put him in a wire splint for three weeks and then in a cast for three weeks. The bones not being in apposition, we put on a plate for eight weeks and then took it off. Following that he developed a superficial area of necrosed bone. This was removed. We could not skin graft the area on account of extensive infection in the exposed tibia, granulation began to appear. This area was all denuded of skin. At one point ¼x½ inch is a piece of necrosed bone. We are letting it alone and hope it will separate itself and we will not have to do any more operating.

It took about ten months to get union in this case. Now we have perfect, solid union, and he walks without crutch or cane, which shows it pays to take time instead of doing an amputation, because an artificial leg is not to be desired.

We used a Lane plate. We put it on with the idea of holding the bones in apposition until they became fixed. He had a sinus which we cleaned out last week. He has about one-fourth inch shortening where we sawed off the ends of the bones to put on the plate.

Case 2. This is a case that should not be shown, but it demonstrates the curative power in children. On March 5, 1925, this boy fell and sustained this injury; that is the separation of the epiphysis of the lower end of the femur. This is the articular surface looking directly anterior. After taking the picture, the boy was given an anesthetic. Under it this reduction was done, which is a fine reduction. In some way it slipped back to its old position. The boy was taken sick and taken home and a picture was not taken after the cast was applied. I saw him about twelve days after this happened, and we had the same position you saw in the first picture. At that time I gave an anesthetic and attempted reduction by manipulation without success, because we had union.

About two weeks after the injury we did an open operation with the attempt to put the articular surface in its proper place. During the operation the boy went into shock after we had partly loosened and tipped the bone in its former position. You will be surprised at the amount of union that had taken place sixteen days from the date of injury. It is like going into a bone never injured. It was the breaking up of this union that caused the boy to go into shock. We had to stop the operation. Fortunately we got out without infection.

We put the boy in a cast. We kept him in the cast a week and upon taking him out commenced manipulation to see what results we had. To our great surprise, we found his knee flexed very well. We let him go. There is no question but what every ligament in the knee joint must have been torn. His knee is firm and solid. The articular surface of the lower end of the femur does not look exactly forward, but practically so. I think he would have been as well off if I had not operated him. This shows the recuperative power of children. Their bones will straighten and they will get function when an older person will get disability.

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*Dry Clinic given before the annual meeting, Nebraska State Medical Association, May 11-13, 1926.

SELF-INFLICTED ABDOMINAL WOUND WITH INJURY TO THE TRANSVERSE COLON AND OMENTUM

ARNO A. BALD, M. D.,
Platte Center, Nebr.

On May 3, 1926, at five a. m., I was called to attend Mrs. S. K., a Japanese housewife, aged 32, and mother of six children. Less than twenty minutes was consumed in making the trip of four miles to the country home or shack. I had not been advised over the phone about the nature of my errand but knew from the tone of voice of the husband that something serious needed attention. On arrival I was informed that the patient had cut her abdomen.

Her illnses had been of short duration as stated by her husband and seemingly of no consequence. She had complained to her husband that she had not slept for several nights and expressed a desire to return to her native country. I found her in bed with covers over her. Pulse was 120, respiration shallow. On turning back the covers I found a mass of intestine, omentum, blood, and underwear, about three inches below ensiforn process and midline. The exact nature of the wound was not discovered at this time because of the almost complete severance of that part of the colon protruding, and a ragged piece of omentum that was bleeding quite freely.

It was quite evident that no time was to be lost in repairing and replacing the injured parts. One-fourth grain morphine per hypo was given while instruments were being sterilized. No anesthetic was used. All the exposed parts were cleaned with a special solution of mercury 1/5000, and iodine was used on the skin. The ragged, bleeding piece of omentum was tied off and severed. The opening in the intestine was closed with plain catgut, a continuous over and over suture used. The entire protruding mass was again sponged with special mercury solution, then replaced in the abdomen. It was then possible to see that the wound was transverse and about five inches in length. Iodoform gauze drain was inserted and the wound closed with silkworm gut, piercing all layers of abdominal wall with each suture. Dry dressings were applied. Patient's condition was about the same.

An ambulance was called to take her to the hospital, where she made an uneventful recovery, wound healing by first intention. Patient was discharged on fifteenth day, the mental condition much improved, patient able to go about her household duties.

URINARY ACIDITY IN SKIN DISEASES

Seborrheic eczema, acne, prickly heat, carbuncles, abscesses, boils and generalized prurigo clear up rapidly under suitable administration of alkalies. Sodium bicarbonate, 30 grains; potassium bicarbonate, 25 grains; and potassium citrate, 15 grains, should be given three times a day, between meals, the dose being increased or diminished according to the acidity of the urine.—Dr. F. C. Doble, of London, Eng.

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ROSTER OF OFFICERS

	Term Expires
Dr. H. J. Lehnhoff, Lincoln, President	1926
Dr. R. D. Bryson, Calloway, Vice President	1926
Dr. E. O. Weber, Wahoo, Vice President	1926
Dr. R. B. Adams, Lincoln, Secretary-Treasurer	1927
Dr. W. P. Wherry, Omaha, Librarian	1927

COUNCILORS

Dr. R. D. Bryson, Calloway	1929
Dr. L. W. Rork, Hastings	1929
Dr. C. A. Selby, North Platte	1929
Dr. F. W. Plehn, Scottsbluff	1929
Dr. A. P. Overgaard, Omaha, Secretary	1927
Dr. H. J. Lehnhoff, Lincoln	1927
Dr. C. P. Fordyce, Falls City	1927
Dr. S. A. Preston, Fremont	1928
Dr. S. A. Preston, Fremont	1928
Dr. W. J. Douglas, Atkinson	1928
Dr. W. J. Douglas, Atkinson	1928
Dr. H. E. Potter, Fairbury	1928

DELEGATES TO A. M. A.

Dr. A. D. Dunn, Omaha	1927
Dr. R. W. Fouts, Omaha	1928

DELEGATES, COUNCIL ON MEDICAL EDUCATION, A. M. A.

Dr. J. S. Welch, Lincoln	1927

MEDICO-LEGAL DEFENSE COMMITTEE

Dr. A. S. v. Mansfelde, Ashland, Honorary Chairman	
Dr. B. B. Davis, Omaha, Chairman	1929
Dr. Czar C. Johnson, Lincoln	1928
Dr. R. B. Adams, Lincoln, Secretary	1927

Note: In case of suit notify secretary at once.

To the Journal Reader—
A Merry Christmas and
A Happy New Year

THE COUNTY SOCIETY

The county society is all that the individual members make it and just what they make it. Primarily the county society is the unit of organization of the American Medical Association; but it is more. It is the social and scientific medical center of the county. The county society can be powerful for good in an organizational, scientific and social way. A chain is no stronger than the weakest link, we are told. The greatest good can only come to the members when all take an active interest and participate in the work of the society. The meetings should be the clearing house of the physicians' professional problems, scientific and financial.

Most of the papers should be by members of the local profession and the local profession should discuss them. The local doctor needs to be brought out of his shell.

The post-war spirit of discontent and of irresponsibility has left its impression on the profession and needs heroic treatment to be cast off.

Lately the tendency over the state has been for those responsible for the programs to invite outside talent to put on the programs. As an occasional thing, this is very well, affording as it does a sort of post-graduate instruction; but the main object, that of drawing out the local doctor, is lost. The incentive to study and to put in writing his ideas and his cases, is sidetracked.

One of the outstanding men of the profession in this state, one who is officially connected with medical organization from the A. M. A. down, recently told the writer that this lack of effort in the members of the local societies, as he saw it, was the most lamentable thing in medical organization today. And, this is the truth.

GROUP INSURANCE

Since quite a large number of members of our association seem to feel that the committee created to take care of the Group Insurance plan of protection against malpractice suits, was not given power to enter into a contract with some company writing this form of insurance, the secretary believes that it will be well to state the entire action taken by the House of Delegates at the annual meeting last May:

Tuesday, May 11, 1926. Dr. Claude Selby of North Platte spoke on the plan of Group Insurance for members of the State association, also spoke against malpractice. The purposes he gave for the Group Insurance, were as follows:

1. It may obtain an equal amount of protection for all members of the association, at much less cost.
2. It would create an incentive to belong to the association.
3. Through that we would have a more unified State association, that is, each man would have the same kind of a policy. It would prohibit and inhibit a man from entering suit against another.
4. Last year it was necessary to raise dues to help the Defense Fund, so by having such a policy, we could relieve the pressure on the Defense Fund.

Dr. Beghtol moved that a committee be appointed to investigate this report. This committee composed of five members, as follows: Dr. C. A. Selby, North Platte; Dr. William J. Douglas, Atkinson; Dr. Morris Neilson, Blair; Dr. R. B. Adams, Lincoln, secretary; Dr. K. S. Hohlen, Lincoln. Seconded and carried.

Wednesday, May 12, 1926, Dr. Claude A. Selby, chairman, read the report of the committee asked to consider the Group Insurance plan, as follows:

To the House of Delegates,
Nebraska State Medical Association:

Your committee reports favorably upon the Group Plan of Physicians Liability Insurance as submitted by the United States Fidelity and Guarantee Company of Baltimore, Maryland, and respectfully recommends that the House of Delegates empower this committee to enter into proper agreement with the above named insurance company, and present the following resolution:

> RESOLVED, That the House of Delegates as the representative body of the Nebraska State Medical Association accepts the report of their committee as favoring the Group Insurance plan as submitted by United States Fidelity and Guarantee Company, and do hereby instruct agreement with said Company.
>
> BE IT FURTHER RESOLVED, That a permanent committee consisting of three members be made. This committee to be appointed by the president and its duties shall be to carry on the work necessary and incident to the furtherance of the above named insurance plan. Respectfully submitted,

It was moved to amend the above resolution by striking out the name, United States Fidelity and Guarantee Company, and to add that no contract be entered into with a company not licensed in the State of Nebraska, and that the committee investigate the matter of Hospital Insurance. Amendment carried, motion carried.

Motion made to reconsider the motion passed relative to the Group Insurance. Motion to reconsider lost.

During July, 1926, the secretary received the following letter from President H. J. Lehnhoff:

Dear Sir:

In regard to the Insurance Committee, will state that I have appointed the following men to serve on this committee:

Dr. C. A. Selby, North Platte; Dr. R. D. Schrock, Omaha; and Dr. Morris Nielsen, Blair.

Very truly yours,
H. J. Lehnhoff, M. D.

This Committee met in Omaha, August 7, 1926. It considered plans from several companies and finally selected the one offered by the United States Fidelity and Guaranty Company.

The secretary believes that by republishing the entire transaction this difference of opinion will be entirely cleared up. The committee, especially Dr. Selby, spent a great amount of time on the subject and selected the best policy of those submitted.

—R. B. Adams, Secy.

THE CLINICAL CONGRESS AT MONTREAL

The sixteenth annual convocation of the American College of Surgeons and Clinical Congress at Montreal was one notable for the outstanding interest manifested and the excellence of its program, and for the completeness of its arrangements.

The British Isles and several continental European countries were well represented by men distinguished by international reputations. Those from New Zealand, Australia, and China were from the most remote parts. Of course Canada took special interest. Our neighbors on the south were also well represented: Mexico, Cuba, Porto Rico, Venezuela, Brazil and Chile.

Dr. Rudolph Matas, the president, in his address referred to the college as representing the Crowned Heads of Surgery of the World. Truly it was an extraordinary gathering of very representative men in their various specialties.

The scientific programs were well planned and embodied subjects which were presented by those most eminently qualified to bring authorative messages concerning present day progress.

The very complete symposia were, therefore, conclusions on progress to this time, as nearly as can be assumed with present day knowledge. It seemed especially fitting that Industrial Surgery which in recent years has become almost a specialty should have been discussed from its various angles. Insurance commissioners, representatives of labor and distinguished reconstructionists participated. A whole evening was devoted to fractures, the keynote of which was standardization.

And when all was finished it seemed that true advances had been made in the many lines of our common endeavors; that the surgical profession had gained higher planes of scientific endeavor, had attained greater heights in idealism and ethics and a warmer, better and more cemented brotherhood.

—J. P. Lord.

THE WORM WILL TURN

We Americans have so long adopted the "holier-than-thou" attitude toward countries afflicted with trachoma (and what country is not?) that it is refreshing to note the complaints made by oculists in Germany and Hungary against the brand of trachoma which we are sending back to them. They assert that not only do numbers of former emigrants to the U. S. A. come back to their native lands with trachoma, but that it is an especially virulent form, more liable to complications, and less susceptible to treatment. Kreiker (*Klin. Mb. f. Aug., April,* 1926) believes that this is due to poor treatment of trachoma in this country; also perhaps to our commercializing tendencies. As an example of the latter he cites a case where all the teeth were ordered pulled to cure the patient's trachoma. Vajda (*ibid.*) thinks that a rich and powerful nation which makes such a show of defending itself against foreign trachoma could well afford to see that the disease is properly treated and that emigrants are not allowed to return home from this country in a worse condition than when they came over here.

To any one who has much experience with trachoma, it must be apparent that our anti-trachoma quarantine is bound to be both inefficient and unjust. Swarms of emigrants with latent trachoma are allowed to come in, and cases of simple folliculosis are kept out, with all the misery and anguish which such injustice implies. It takes years of experience to learn to diagnose some of the more common varieties of trachoma. The writer for more than forty years, has been especially interested in trachoma, having once been treated for it when he did not have it, and having had the real thing for two years. He still finds it impossible at times to decide, at once, whether or not a patient has trachoma. The bacterial tests are time-robbers and unreliable. How can it be expected that neophytes, at one hundred and fifty to two hundred a month, can give the country protection or the emigrant a fair deal? And as the chance that experienced oculists will give up established practice for this work is practically non-existent, may there not be a question as to the rationality of attempting to maintain a national quarantine for this disease?

—H. Gifford.

AMERICAN COLLEGE OF PHYSICAL THERAPY MEETING

The increasing interest by the regular profession in the use of physical measures as a recognized procedure in the treatment of disease was well illustrated by the attendance at the Fifth Annual Meeting of The American College of Physical Therapy held at the Drake Hotel, Chicago, October 18th to 23rd.

The program, which was quite varied, embraced practically every phase of physical therapy and was presented by teachers from many of the leading universities of medicine and physicians specializing in this particular field.

More than one thousand were in attendance during the five days. The program was divided into three sections under the headings of Eye, Ear, Nose and Throat; Medicine, Pediatrics and Endocrinology, and Surgery, Gynecology and Urology. Sessions began at 8:30 in the morning and continued till 10:30 at night with regular round table discussions during the luncheon period.

Dr. Franz Nagelschmidt of Berlin was a guest of the college during the week and appeared on the program several times. His visit to the United States was at the invitation of the college and at the regular convocation of Fellows, he was accorded Honorary Fellowship.

The principles promulgated by this organization make for better and more scientific practice in this field of medicine. Requirements for membership in The American College of Physical Therapy are, that the applicant be a regular licensed physician, who is a member of his local county and state medical association, if a resident of the United States. If not a resident, he must be a member of the local medical society of the province in which he resides. Its membership now extends to many of the European countries, India, Australia, Hawaii, Canada, South American and every state in the Union.

The recent meeting was the largest of its kind ever held from the standpoint of both the program and attendance. A registration fee of five dollars was charged and only regular licensed physicians were registered. Admission to the sessions was obained by presentation of the registration cards, thereby excluding the irregular practitioner, of which the field of Physical Therapy harbors many.

The program consisted of physical therapy in all its phases. Papers were presented on x-ray diagnosis and treatment and raduim therapy. Physics of high frequency, galvanic, faradic and sinusoidal currents, their application and indications were detailed by different essayists. Diathermy, both medical and surgical, occupied a prominent place on the program, with the uses of ultra violet light a close second. Hydrotherapy and heliotherapy were represented by one or two papers each.

Dr. Harry E. Mock, chairman of the Council on Physical Therapy of the American Medical Association, delivered the principal address at the annual banquet and explained the purposes for which this body was created; that of standardizing and censoring not only the equipment that is being placed on the market by the many manufacturers but their advertisement and claims made for the equipment as well. To this movement the college subscribed pledging its whole-hearted support to the end that only reliable equipment be marketed and that all extravagant claims relative to the article be deleted before its advertisement be accepted for publication in its official journal, "The Archives of Physical Therapy, X-ray and Radium."

Dr. Disraeli Kobok, physician in charge of Physical Therapy Departments of the Cook County and Presbyterian Hospitals, Chicago was elected president; Dr. J. C. Elsom, Chair of Physical Therapy, Medical Department of University of Wisconsin, President-elect; Dr. R. W. Fouts, Omaha, Secretary.

The 1927 meeting will be held in Chicago.

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THE FAMILY DOCTOR OF TODAY

The words "family doctor" suggest old age, long whiskers, and rusty methods; and the breezy literature of the moment tells us that the family doctor is dying out, and goes into rhapsodies about the specialist. The fact of the matter is that never before in the world's history was the family doctor more urgently needed than he is now; and if he meets the requirements, he will no more pass than the automobile will pass because of the discovery of the aeroplane. However, this age needs a different type of family doctor than did yesterday.

The family doctor of today is a young man. He may be on either side of fifty in years, but nevertheless he is a young man; he is up to date on his information and is learning every day. Some services he performs for his families are the same as were those of his predecessor of fifty years ago, with perhaps slight modernization in the method. One of these is the care of emergencies. He is the first one the family thinks of, and he must do the deciding if further help is needed, whenever his patients meet with an accident or are suddenly taken sick.

The old family doctor was supposed to "know all about" his patients, so that it was not necessary for him to re-examine them in order to know what kind of pills to give them. We dare say that this knowledge was often traditional and without basis; for mere long acquaintance will not give a doctor an accurate knowledge of his patient's physical condition. The modern family physician, however, must also "know all about" his patients, and should be able to advise them instantly, with a minimum of examination. But his knowledge should be in his card-index file, and should be based on periodical examinations of his patient. As we understand things today, the family doctor's chief duty is to make the periodical physical examinations and file the results; even if his patient never gets sick he still requires the doctor's services. The periodical health examination is a specialty in itself. It requires rather a different training and different technic to examine a person who has no complaint, and do it thoroughly and well; and many of the old practicing clinicians are not at all skilled in it. To the modern family doctor, it affords the keenest professional pleasure to go painstakingly over a patient who claims he is not sick; and he is mentally and materially equipped to do it properly.

A third duty of the modern family doctor is to bring to his patients the benefit of modern knowledge of the early stages of chronic disease and the prophylactic handling thereof. Many of the old "incurable" diseases can now be recognized early enough to be prevented; and the doctor must be on the lookout for the early tuberculous stages, for the pre-diabetic, for the prospective apoplectic, and so forth. He must be most up to date in his knowledge of pathology, clinical research, and therapeutics, if he is to be effective in this respect; and he can only be effective through the medium of the periodical health examination.

Finally, the family doctor of today, because of the peculiar nature of the times, is an advisor and educator, to whom no professional teacher is superior, and to whom even the minister is second. That is, if he qualifies himself. Outside the medical profession, the individual is rare who can give proper sex hygiene instruction to young people of all ages at the time when they most need it; the doctor is the logical man. Now the birth control question is spreading, and people come to ask the doctor. The plump young lady wants to reduce and takes big chances doing so; the slim young lady doesn't realize what chances she is taking by remaining so extremely underweight; both of them need careful advice. Is his job easy? No specialist needs more brains and more hard and incessant work to keep himself fit for his job.

Usually the modern family doctor is too busy to be much of a research man himself; his research is among the people. But he has not lost his grip on the methods of the laboratory; he reads their literature and keeps up with them. The only thing he lacks is the proper co-operation of the public. A great deal of education is still needed before the people will take advantage of all the benefits that medical science is able to give them through the general practitioner if they will but come and get it.

—Miles J. Breuer.

THE INTER-STATE POSTGRADUATE ASSEMBLY AT CLEVELAND

During the week of October 18th the Assembly met in Cleveland, in one of the most notable sessions that it has held.

The meetings were held in the magnificent Municipal Auditorium, which deserves a word of comment. This building, which seats 12,000 comfortably, was erected by the people of Cleveland for the production of the play "The Miracle", some four years ago. The comforts and the conveniences of the main auditorium, and the exhibit hall below, with the radio and refreshment rooms, made it a place of great enjoyment to all those who were present at the meeting.

The presence of 3,000 to 4,000 physicians from all parts of the North American continent, was an inspiration in itself. This enthusiastic and earnest crowd, with the aid of a well-balanced program, left an impression that it will take a long time to efface. The arrangements from the standpoint of the program and the clinics were most complete. There was no evidence of the machinery necessary to keep the program moving smoothly. In fact, the men of Cleveland, who were largely responsible for the success of the meeting, were so much in the background that it was a matter of comment. It excited some criticism, because, as visitors, the audience were interested in seeing the well-known men of Cleveland.

The city of Cleveland is peculiarly adapted for a meeting of this type, both because of the wealth of its clinical material, and the quality and diversity of its hospitals and clinics. It is an interesting fact that it contains quite a few men whose names are not known nationally, and yet are of much eminence in their local community.

Day by day, from Monday until Friday, the program went off on schedule time in spite of the fact that time after time the speakers were being drawn from places as distant as Buenos Ayres, Stockholm, Copenhagen, Munich, and the most distant parts of the North American continent.

There was much less effort this year to present any great number of cases. This was a decided improvmeent. The size of the audience and the distance of the platform from the audience practically prohibited the demonstration of physical signs, so the few patients that were brought in were used merely as a text for a sermon, and the speakers relied on charts, blackboard and lantern slides (on an enormous screen) to illustrate the points that were brought out by their talks.

Another interesting feature of the meeting was the opportunity afforded during intermissions for men to meet classmates and hospital friends who they had not seen for years. The audience was a most diverse collection of men, including every branch of medicine and surgery. Little opportunity was given for visiting, however, because of the crowded program and the long hours. It was true, as one speaker said: "There is little time left for thinking during these strenuous six days." But apparently it was the idea of the program committee that the material be presented and swallowed, later to be regurgitated and thoroughly chewed and digested at the leisure of the doctor. In addition to this, the proceedings of the meetings will be published and sold later in the year to those who were present, so the material is picked up in this way.

The papers were particularly well managed, both from the standpoint of brevity and from the choice of material. The program committee seemed to have the fine art. of choosing men who could present their subjects succinctly. There was no time on a program of this kind to detail any subject, and the listeners were a group of men who had come for facts and not for oratory.

The beautiful pipe organ, together with the remarkable lighting effects, that were used between the sessions of the program, served to afford a pleasant interruption in the intensive array of subjects that was presented. Community singing, announcements, the seventh inning stunts were used from time to time to make the benches seem less hard and the course of learning less thorny.

Many new and remarkable facts were presented. No attempt will be made to cover this part of the meeting at all. Some of the outstanding things were the various symposia that were heard. Can one think of any more striking collection of men than that which appeared on Thursday afternoon at the symposium on diabetes — Woodyatt of Chicago, Joslin of Boston, MacLeod of Toronto? Another symposium —on respiratory diseases — consisted of Col. Keller, of Washington, Hill of Cleveland, Evarts Graham of St. Louis. One on nervous diseases presented Dandy of Baltimore, Locke of Cleveland, Harvey of New Haven, Dean Lewis of Baltimore. Still another on orthopedics was composed of Darrach of New York, Golthwait of Boston, Baer of Baltimore, Starr of Toronto. Another notable symposium was one on cancer, with such men as Bloodgood of Baltimore, Wood of New York, Carrel of New York, Greenough of Boston, Handley of London.

Probably one of the most striking things that was brought out was a paper by Dr. Hans C. Jacobaeus, Stockholm, explaining his technique in the use of the endoscope in thoracoscopy for the cutting of pleural adhesions to enable the collapse of the lung where such measures are indicated. This is a beautiful piece of work and one that offers numerous advantages in the treatment of these cases where pneumothorax does not accomplish the collapse, or thoracoplasty is too vigorous a procedure.

Among other individual papers, one that attracted a great deal of favorable comment, was on "Recent Advances in our Knowledge of Pneumonia" by Dr. Russell L. Cecil of New York City.

The papers by such foreign speakers as were present were considerably above the average, but in most cases the speaker was handicapped by his lack of fluency in the English language and his inability to make himself understood as clearly as the other speakers. Notable among these foreign speakers was Mr. John M. C. Fraser, of Edinburgh, Scotland, a comparatively young man, yet with a most detailed grasp of the subject that he took up, one of which dealt with the "Sympathetic Disturbances of the Abdominal Viscera," and the other, an exposition on "Tuberculous Diseases of the Hip Joint", which was most complete and satisfactory in its presentation.

It was the general impression of the assembly, based partly on patriotic motives, partly on observation, seasoned with mature judgment, that the visitor to our shores had little new to offer us. In fact, the shortness of time given to any paper gave little opportunity for the attention to details and the lengthy presentation that a foreign writer is so prone to follow in his usual thorough method of getting at any subject. This is not an observation of this meeting alone. It is probably a well known fact at the present time. The contact of the American physicians with men from other shores during the war, and the progress made in medicine and surgery since the war, coupled with the energetic methods of the American man of science, are largely responsible for the bringing of the center of original and up-to-date work to America, whereas no less than ten years ago it was a common feeling that much was to be gotten in the continental clinics on foreign shores that could not be had in the States.

The meetings next year, we understand, are to be held in Kansas City, which will mean that they will be much more accessible than those of this year.

The Assembly was a success in every way, if we judge by the comments made by those who were present, and in the last analysis they are the true judges. The opportunity for a bit more leisure would probably make it more popular than ever, but it will never want for listeners so long as they keep up the type of program that they have presented the last four or five meetings.

—F. W. Heagey.

EDITORIAL PARAGRAPHS

An officer of one of the rural county medical societies writes to your editor that "it will take more than a crack in the eye to straighten out the ethics of. .medical men and the. .medical society!" Sad that such comment should be called forth.

All county and state dues are payable January 1st. There can be no real good reason for deferring payment any longer than that time. Delay makes a lot of extra work for the secretary and adds to the expense of administering the association.

"Intestinal flu": Can it be possible? Cholera morbus, cholera infantum, gastro-enteritis, dysentery, the diarrhoeal diseases of children in hot weather, all, flippantly, "intestinal flu"! Ye Gods! Ye Teachers of our Medical Colleges! How proud you must be of your younger progeny!

Much is said about medical ethics; flippant reference is often made by persons who know very little or nothing about the text of the *Principles of Ethics* as promulgated by the A. M. A. Every one will profit by a perusal of that part of the Principles of Ethics re-published on the following pages.

Professor W. D. Coolidge, inventor of the Coolidge x-ray tube, has perfected a tube for projecting the cathode ray, one of the most powerful known to science. It appears that disintegration of the whole body of a mouse will occur following a fraction of a minute's exposure to the ray. Verily it appears that wonders never cease.

Beginning with the January, 1927, issue, The Radiological Review, Quincy, Ill., will be published monthly instead of bi-monthly and it will increase in number of pages from 32 to 64. This is the only journal devoted to the progress of X-ray and Radium from the standpoint of the general practitioner and the specialist in branches other than Radiology.

While the death rate for all classes is about 11.9 per thousand, the death rate of physicians is about 17.22 per thousand. This is not due to contracting disease by contact with the sick as might be supposed, but is due to physical strain, exposure, fatigue and the worries and responsibilities of practice. Twenty-two per cent of physicians die of heart disease and 9 per cent of pneumonia.

The Supreme Court of the United States, on October 11, 1926, rendered a decision declaring that the Chemical Foundation has been acting legally and properly in the purchase of the foreign drug and chemical patents during the war, and licensing American manufacturers to produce these essential substances in this country. Vitally necessary drugs affected by this decision are such as arsphenamines, cinchophen, barbital, the flavines, procaine and others.

Housewives, even the doctors' wives, have for some time been afraid of aluminum cooking utensils, on the supposition that poisoning might result from chemical combinations of fruits or vegetables with aluminum. It is reassuring, therefore, to note that the Medical Research Council of Great Britain (*J. A. M. A.*) has determined that it takes the most delicate tests to indicate the presence of traces of aluminum after cooking acid fruits and vegetables for long periods.

An article in *The American Boy* for October, based on an interview with Dr. William J. Mayo, tells what a young man may expect in the way of reward and requirements in the field of medicine. Dr. Mayo is quoted as saying that we need more general practitioners in rural districts and in cities, favors a reduction in the time requirements that would lessen the time spent in preparation and thus lessen the cost, and suggests that this saving might be made in the grammar and high school; says 60% of the medical students of the University of Minnesota are making all of their expenses by work.

All of us should make our knowledge of medicine as broad as possible—not that anyone can ever know it all, but that we should lay a good, solid foundation of general and technical knowledge; study deeply to keep abreast of new facts and discoveries; and work as hard to make ourselves capable family physicians as the specialist works to become proficient in his particular line. When we have accomplished the specialty of general practice, we will be in a position to hold our heads perhaps even a little higher than those of more limited claim on the attention of their fellows.—Acheson, in Clinical Medicine.

PRINCIPLES OF MEDICAL ETHICS

CHAPTER I

The Duties of Physicians to Their Patients

The Physician's Responsibility

Section 1.—A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration. The practice of medicine is a profession. In choosing this profession an individual assumes an obligation to conduct himself in accord with its ideals.

Patience, Delicacy and Secrecy

Sec. 2.—Patience and delicacy should characterize all the acts of a physician. The confidences concerning individual or domestic life entrusted by a patient to a physician and the defects of disposition or flaws of character observed in patients during medical attendance should be held as a trust and should never be revealed except when imperatively required by the laws of the state. There are occasions, however, when a physician must determine whether or not his duty to society requires him to take definite action to protect a healthy individual from becoming infected, because the physician has knowledge, obtained through the confidences entrusted to him as a physician, of a communicable disease to which the healthy individual is about to be exposed. In such a case, the physician should act as he would desire another to act toward one of his own family under like circumstances. Before he determines his course, the physician should know the civil law of his commonwealth concerning privileged communications.

Prognosis

Sec. 3.—A physician should give timely notice of dangerous manifestations of the disease to the friends of the patient. He should neither exaggerate nor minimize the gravity of the patient's condition. He should assure himself that the patient or his friends have such knowledge of the patient's condition as will serve the best interests of the patient and the family.

Patients Must Not Be Neglected

Sec. 4.—A physician is free to choose whom he will serve. He should, however, always respond to any request for his assistance in an emergency or whenever temperate public opinion expects the service. Once having undertaken a case, a physician should not abandon or neglect the patient because the disease is deemed incurable; nor should he withdraw from the case for any reason until a sufficient notice of a desire to be released has been given the patient or his friends to make it possible for them to secure another medical attendant.

CHAPTER II

The Duties of Physicians to Each Other and to the Profession at Large

Article I.—Duties to the Profession

Uphold Honor of Profession

Section 1.—The obligation assumed on entering the profession requires the physician to comport himself as a gentleman and demands that he use every honorable means to uphold the dignity and honor of his vocation, to exalt its standards and to extend its sphere of usefulness. A physician should not base his practice on an exclusive dogma or sectarian system, for "sects are implacable despots; to accept their thraldom is to take away all liberty from one's action and thought." (Nicon, father of Galen.)

Medical Societies

Sec. 2.—In order that the dignity and honor of the medical profession may be upheld, its standards exalted, its sphere of usefulness extended, and the advancement of medical science promoted, a physician should associate himself with medical societies and contribute his time, energy and means in order that these societies may represent the ideals of the profession.

Deportment

Sec. 3.—A physician should be "an upright man, instructed in the art of healing." Consequently, he must keep himself pure in character and conform to a high standard of morals, and must be diligent and conscientious in his studies. "He should also be modest, sober, patient, prompt to do his whole duty without anxiety; pious without going so far as superstition, conducting himself with propriety in his profession and in all the actions of his life." (Hippocrates.)

Advertising

Sec. 4.—Solicitation of patients by physicians as individuals, or collectively in groups by whatsoever name these be called, or by institutions or organizations, whether by circulars or advertisements, or by personal communications, is unprofessional. This does not prohibit ethical institutions from a legitimate advertisement of location, physical surroundings and special class — if any — of patients accommodated. It is equally unprofessional to procure patients by indirection through solicitors or agents of any kind, or by indirect advertisement, or by furnishing or inspiring newspaper or magazine comments concerning cases in which the physician has been or is concerned. All other like self-laudations defy the traditions and lower the tone of any profession and so are intolerable. The most worthy and effective advertisement possible, even for a young physician, and especially with his brother physicians, is the establishment of a well-merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of character and conduct. The publication or circulation of ordinary simple business cards, being a matter of personal taste or local custom, and sometimes of convenience, is not per se improper. As implied, it is unprofessional to disregard local customs and offend recognized ideals in publishing or circulating such cards.

It is unprofessional to promise radical cures; to boast of cures and secret methods of treatment or remedies; to exhibit certificates of skill or of success in the treatment of diseases; or to employ any methods to gain the attention of the public for the purpose of obtaining patients.

Article III.—Duties of Physician in Consultations.

Consultations Should Be Encouraged

Section 1.—In serious illness, especially in doubtful or difficult conditions, the physician should request consultations.

Consultation for Patient's Benefit

Sec. 2.—In every consultation, the benefit to be derived by the patient is of first importance. All the physicians interested in the case should be frank and candid with the patient and his family. There never is occasion for insincerity, rivalry or envy and these should never be permitted between consultants.

Punctuality

Sec. 3.—It is the duty of a physician, particularly in the instance of a consultation, to be punctual in attendance. When, however, the consultant or the physician in charge is unavoidably delayed, the one who first arrives should wait for the other for a reasonable time, after which the consultation should be considered postponed. When the consultant has come from a distance, or when for any reason it will be difficult to meet the physician in charge at another time, or if the case is urgent, or if it be the desire of the patient, he may examine the patient and mail his written opinion, or see that it is delivered under seal, to the physician in charge. Under these conditions, the consultant's conduct must be especially tactful; he must remember that he is framing an opinion without the aid of the physician who has observed the course of the disease.

Patient Referred to Specialist

Sec. 4.—When a patient is sent to one specially skilled in the care of the condition from which he is thought to be suffering, and for any reason it is impracticable for the physician in charge of the case to accompany the patient, the physician in charge should send to the consultant by mail, or in the care of the patient under seal, a history of the case, together with the physician's opinion and an outline of the treatment, or so much of this as may possibly be of service to the consultant; and as soon as possible after the case has been seen and studied, the consultant should address the physician in charge and advise him of the results of the consultant's investigation of the case. Both these opinions are confidential and must be so regarded by the consultant and by the physician in charge.

Discussions in Consultation

Sec. 5.—After the physicians called in consultation have completed their investigations of the case, they should meet by themselves to discuss conditions and determine the course to be followed in the treatment of the patient. No statement or discussion of the case should take place before the patient or friends, except in the presence of all the physicians attending or by their common consent; and no opinions or prognostications should be delivered as a result of the deliberations of the consultants, which have not been concurred in by the consultants at their conference.

Attending Physician Responsible

Sec. 6.—The physician in attendance is in charge of the case and is responsible for the treatment of the patient. Consequently, he may prescribe for the patient at any time and is privileged to vary the mode of treatment outlined and agreed on at a consultation whenveer, in his opinion, such a change is warranted. However, at the next consultation, he should state his reasons for departing from the course decided on at the previous conference. When an emergency occurs during the absence of the attending physician, a consultant may provide for the emergency and the subsequent care of the patient until the arrival of the physician in charge, but should do no more than this without the consent of the physician in charge.

Conflict of Opinion

Sec. 7.—Should the attending physician and the consultant find it impossible to agree in their view of a case another consultant should be called to the conference or the first consultant should withdraw. However, since the consultant was employed by the patient in order that his opinion might be obtained, he should be permitted to state the result of his study of the case to the patient, or his next friend in the presence of the physician in charge.

Consultant and Attendant

Sec. 8.—When a physician has attended a case as a consultant, he should not become the attendant of the patient during that illness except with the consent of the physician who was in charge at the time of the consultation.

Article IV.—Duties of Physicians in Cases of Interference.

Criticism to be Avoided

Section 1.—The physician, in his intercourse with a patient under the care of another physician, should observe the strictest caution and reserve; should give no disingenuous hints relative to the nature and treatment of the patient's disorder; nor should the course of conduct of the physician, directly or indirectly, tend to diminish the trust reposed in the attending physician. In embarrassing situations, or wherever there may seem to be a possibility of misunderstanding with a colleague, the physician should always seek a personal interview with his fellow.

Social Calls on Patient of Another Physician

Sec. 2.—A physician should avoid making social calls on those who are under the professional care of other physicians without the knowledge and consent of the attendant. Should such a friendly visit be made, there should be no inquiry relative to the nature of the disease or comment upon the treatment of the case, but the conversation should be on subjects other than the physical condition of the patient.

Services to Patient of Another Physician

Sec. 3.—A physician should never take charge of or prescribe for a patient who is under the care of another physician, except in an emergency, until after the other physician has relinquished the case or has been properly dismissed.

Criticism to be Avoided

Sec. 4.—When a physician does succeed another physician in the charge of a case, he should not make comments on or insinuations regarding the practice of the one who preceded him. Such comments or insinuations tend to lower the esteem of the patient for the medical profession and so react against the critic.

Emergency Cases

Sec. 5.—When a physician is called in an emergency and finds that he has been sent for because the family attendant is not at hand, or when a physician is asked to see another physician's patient, he should provide only for the patient's immediate need and should withdraw from the case on the arrival of the family physician after he has reported the condition found and the treatment administered.

When Several Physicians Are Summoned

Sec. 6.—When several physicians have been summoned in a case of sudden illness or of accident, the first to arrive should be considered the physician in charge. However, as soon as the exigencies of the case permit, or on the arrival of the acknowledged family attendant or the physician the patient desires to serve him, the first physician should withdraw in favor of the chosen attendant; should the patient or his family wish some one other than the physician known to be the family physician to take charge of the case the patient should advise the family physician of his desire. When, because of sudden illness or accident, a patient is taken to a hospital, the patient should be returned to the care of his known family physician as soon as the condition of the patient and the circumstances of the case warrant this transfer.

A Colleague's Patient

Sec. 7.—When a physician is requested by a colleague to care for a patient during his temporary absence, or when, because of an emergency, he is asked to see a patient of a colleague, the physician should treat the patient in the same manner and with the same delicacy as he would have one of his own patients cared for under similar circumstances. The patient should be returned to the care of the attending physician as soon as possible.

Relinquishing Patient to Regular Attendant

Sec. 8.—When a physician is called to the patient of another physician during the enforced absence of that physician, the patient should be relinquished on the return of the latter.

Substituting in Obstetric Work

Sec. 9.—When a physician attends a woman in labor in the absence of another who has been engaged to attend, such physician should resign the patient to the one first engaged, upon his arrival; the physician is entitled to compensation for the professional services he may have rendered.

THE SOCIETIES

The **Omaha-Douglas County Medical Society** met in the auditorium of the new Medical Arts building, November 9, President Sachs presiding. Dr. B. C. Russum presented a pathological specimen obtained at autopsy, an apopleptic cyst. Dr. A. D. Dunn and Dr. A. J. Miller presented a case of pachymeningitis hemorrhagic interna, Dr. Dunn giving the clinical history and Dr. Miller the postmortem findings. Dr. H. B. Hamilton presented a case of dye poisoning. Dr. Lowell Dunn talked on "Types of Diabetes Mellitus" with a report of 22 cases of renal glycosuria, which he has studied with Dr. Woodyatt at the Presbyterian Hospital. Lantern slides of charts showing the intake and output of sugar in each case were used to illustrate this talk. Discussion by Dr. Frank Conlin and Dr. Levine. Dr. Franz Nagelschmidt, of Berlin, Germany, gave the address of the evening, his subject being "Physiotherapy, An Adjunct of Medicine."

Regular meeting of the **Lancaster County Medical Society** held October 5, 1926, at the Orthopedic Hospital, Lincoln, Dr. F. F. Teal in the chair.

Call for clinical cases. Dr. J. S. Welch presented a recital of a female, sixty-eight years of age, with carcinoma of the stomach. This patient was operated upon with the idea of doing a gastrectomy. There was revealed a massive carcinoma of the lesser curvature with a benign ulcer of the pylorus on the stomach side. A gastro-entrostomy was done and the course was uneventful for ten days, at the end of which time patient developed a train of mental symptoms and died. Post mortem revealed a failure of the surgical procedure to hold due to fat necrosis.

The second case was that of a male, eighty years of age, who was first seen eighteen months ago with a well advanced secondary anemia. X-ray showed a filling defect at the pyloric end of the lesser curvature with no pyloric obstruction. Upon exploration a large saddle carcinoma involving the entire lesser curvature was found, yet with no evidence of gastric obstruction. It was interesting, too, that at the autopsy, an aneurism was found at the apex of the heart in the left ventricle perforating the heart muscles and with nothing but the epicardium as a covering.

The papers of the evening were called for, whereupon Dr. Hancock read his paper entiled: "Tuberculosis as a Child Health Problem." Dr. Hancock approached his subject from the standpoint of juvenile tuberculosis in its typical form or "hilus gland tuberculosis". The essayist considered juvenile tuberculosis as systemic disease with a primary focus elsewhere in the body, usually the lungs. It was brought out thta the prevalence of juvenile tuberculosis is high, that the diagnosis of this disease is difficult in childhood. There are few physical findings and usually very difficult to elicit. There are a large number of conditions which must be differentiated from this disease. Firstly, simple malnutrition from food and health habits, and the second, is the general toxemia or upper respiratory infection, particularly that due to tonsils, adenoids, and sinuses. The essayist presented various methods of prevention of tuberculosis in the child: The separation of adult cases from children, boiled or pasteurized milk, care of food supply and education of the population. And for prevention of the territary forms, he advocated early diagnosis, observation through life, especially of abolescence with the institution of proper food and health habits, open window rooms and open air schools and the reporting of cases and the co-operation with the Anti-Tuberculosis Society.

The second paper of the evening was read by Dr. Miles J. Breuer and entitled: "The Mechanism of Presenting Symptoms in Pulmonary Tuberculosis." Tuberculosis of the lungs frequently passes undiagnosed because the presenting symptom is misleading in that it does not appear to have any connection with the lungs; the condition is, therefore, overlooked in the stages whree treatment is beneficial, and allowed to become hopeless and incurable. An understanding of the extra-pulmonary symptoms will help in getting more cases diagnosed early. "Examining the lungs" is meaningless. Frequent colds may be due to lower resistance from the tuberculosis; or may be a secondary tuberculous bronchitis. Chest pains may be tuberculous pleurisy, and intercostal neuritis secondary to pleurisy; or a degenerative neuritis of a reflex nature; or most often, a visceral reflex. Tachycardia and bradycardia are reflexes over the vagi and sympathetics. Dyspnea may be due to toxic myocarditis, or to a heart overburdened by reflex stimulation by the sympathetics; there may be an insufficient movement of the blood volume due to abdominal stasis; or an insufficient aeration due to restricted pulmonary excursion because of adhesions, or because of reflex spasm of the respiratory musculature. Gastro-intestinal symptoms are due to reflexes over the vagi and sympathetics; and to abdominal circulatory stasis produced by restricted diaphragmatic movement. "Nervousness" is a symptom of sympathicotonia produced by toxemia. Headache may be toxic, reflex from the abdominal complications, produced by sinusitis that is so often associated with tuberculosis; or of an ocular nature due to disturbances in accommodation produced by pulmonary reflexes through the oculomotor nerves. Dysmenorrhea may be secondary to abdominal circulatory stasis produced by diaphragmatic fixation; or it may be an endocrine disturbance due to sympathicotonia or vagontonia. Hoarseness and aphonia are reflexes over the vagus branches, or due to simple inflammation from excessive coughing. Arm and shoulder pains may be visceral reflexes, neuritis, of reflex or bacterial origin, or traction on the brachial plexus due to relaxation of the shoulder girdle muscles.

The two papers were jointly and variously discussed by Drs. Bartholemew, Becker, Rowe and Waite.

—Arbor D. Munger, Sec.

The **Seventh Councilor District Medical Society** meeting was held at Fairbury, October 21. The following officers for the ensuing year were elected: Dr. J. A. Trowbridge, Superior, president; Dr. R. Decker, Byron, secretary-treasurer.

The following program was carried out:

"Rheumatism, Cause and Treatment," A. N. Anderson, M. D., Belvidere; "Gas Bacillus Infection," J. S. Taylor, M. D., Fairbury; "Diarrhoeas of Infancy and Early Childhood," D. O. Hughes, M. D., Fairbury; "Early Recognition of Tuberculosis in Children," E. W. Hancock, M. D., Lincoln; "Treatment of Fractures," C. G. McMahon, M. D., Superior; "Fractures of Lower End of Radius," J. W. Duncan, M. D., Omaha; "Practical Points," P. H. Bartholemew, M. D., Lincoln.

The Jefferson County Medical society was host at a 6:30 p. m. dinner tendered the visiting physicians.

The annual meeting of the **Republican Valley and Tenth Councilor District Medical Society** met at the Hastings State Hospital, October 28. Luncheon was served by the courtesy of Dr. G. M. White, superintendent, to about 150, including the wives and daughters of the doctors. Dr. F. A. Long, Madison, read a paper dealing with the life and work of physicians. Dr. B. F. Bailey, Green Gables, urged greater interest and closer organization of the medical fraternity.

The afternoon program follows:

President's Address, "Medical Jurisprudence", Dr. J. V. Beghtol, Hastings; "Medical Malpractice Suits", Dr. Czar C. Johnson, Lincoln; "Postoperative Treatment", Dr. F. A. Brewster, Holdrege; "Clinical Aspects of Nervous and Mental Diseases, With Case Illustrations", Dr. G. L. Pinney, Hastings.

Dr. J. M. Willis, McCook, was elected, president; Dr. F. A. Brewster, Holdrege, vice president; Dr. Lother F. Egen, Hastings, secretary; and Dr. H. S. Andrews, Minden, treasurer.

The **Fifth Councilor District** held its annual meeting at Oakland on Wednesday, November 10th. There was an attendance of thirty or more and a very good program. The outstanding feature of the meeting was the very generous discussion that was stimulated by the excellence of the papers. A splendid dinner was served in the Methodist church, after which several very interesting addresses were delivered.

The program follows:

Dr. G. Alexander Young, Omaha, "Experiences With the Malarial Treatment of Paresis and Cerebro-Spinal Syphilis"; Dr. L. J. Townsend, Sioux City, Iowa, "Experiences and Conclusions, Aphorisms, Deductions"; Dr. A. O. Fasser, Fremont, "Severe Trauma to Abdominal Organs Caused by External Violence, With Report of Cases"; Dr. Clyde A. Roeder, Omaha, "A New Classification of Goitre", with plates; Dr. H. W. Benson, Oakland, "Public Health in Rural Communities"; Dr. A. I. McKinnon, Lincoln, "Conservative Pelvic Surgery"; Dr. B. C. Tiesing, Columbus, "Cardio-Vascular Disease"; Dr. C. W. M. Poynter, Omaha, "The Drift of Medical Education"; Dr. Czar C. Johnson, Lincoln, Medical Councilor for the Medico-Legal Committee of the Nebraska State Medical Association, "Medical Malpractice Suits"; Mrs. Clarence Rubendall, Omaha, President of Woman's Auxiliary to Nebraska State Medical Association, "The Auxiliary—County, State and National".

The **Madison County Medical Society** meeting for October was held at Pierce, on the 12th. Dr. Alfred J. Brown, Omaha, was the guest of honor and spoke on the transplantation of nerves for the cure of facial paralysis, illustrating his presentation with slides. He also showed a series of slides illustrating the various types of goiter. Dr. E. L. Brush presented a case of transposition of the viscera. The P. E. O. Sisterhood served a 7 o'clock banquet for the occasion.

The November meeting was hold on the 9th at the Hotel Norfolk, Norfolk, following a dinner to over one hundred physicians and dentists and their wives from points in north Nebraska. Dr. W. L. Shearer, Omaha, gave the address of the evening on "Infections of the Mouth", illustrating his subject by numerous slides. A dance followed the scientific session.

The Central Nebraska Medical Society met at Ord, November 3, under the presidency of Dr. C. J. Miller.

The program carried out follows:

"Some Phases of Epilepsy," Dr. E. G. Johnson of Grand Island; "Nasal Sinus Disease," Dr. F. A. Barta of Ord; "Examination of the School Child," Dr. E. C. Hanisch of St. Paul; "Friedlich's Syndrome," Dr. E. E. Farnsworth of Grand Island; "Diarrhoea," Dr. Rodney Bliss of Omaha.

Following the banquet, Dr. H. H. Potter, Fairbury, president-elect of the Nebraska State Medical Association, gave an address on the foundations of medicine.

The **Richardson County Medical Society** at the meeting of November 3, after a dinner at the Hotel Weaver, Falls City, carried out the following program:

"Medical Observations on a European Tour", Dr. C. E. Novak, Humboldt; "Disease Prevention in the Public Schools", Dr. E. R. Hays, Falls City; "A New Aid in Diagnosing Appendicitis", Dr. O. F. Lang, Falls City; "A Report on the Cleveland Meeting of the Interstate Medical Association", Dr. C. L. Hustead, Falls City.

HUMAN INTEREST TALES

Dr. Rodney K. Johnson has located at Friend.

Dr. A. D. Neely has moved from Lynch to Burchard.

Dr. E. C. McAleer is a new physician at Norfolk.

Dr. B. F. Gay has moved from Tecumseh to Stockville.

Dr. C. S. Molseed, Omaha, attended eastern clinics in October.

A six-bed home for the sick has been opened at Clay Center.

Dr. and Mrs. LeRoy Crummer, Omaha, have returned from Europe.

Dr. Perry Allerton, Tilden, is recovering after an operation for hernia.

Dr. H. C. Sumney, Omaha, hunted caribou in the Canadian north woods this fall.

Dr. Fred W. Kuhlman has located at Table Rock in association with Dr. E. L. McCrea.

Dr. Franz Nagelschmidt of Berlin gave a series of lectures on physical therapy in Omaha last month.

Dr. Paul W. Berney has located at Leigh in succession to Dr. J. H. Lowery, who has gone to California.

The marriage of Dr. C. M. Murphy, of Emerson, and Miss Margaret Sullivan, of Spaulding, is announced.

Dr. J. C. Moore, former Omahan, now resident of Hollywood, Calif., visited his son, Dr. Clyde Moore, in Omaha, recently.

Dr. A. C. Stokes, Omaha, was elected vice president of the Western Surgical Association at the meeting at Duluth in October.

Dr. J. H. Lowery, for thirty-two years in active practice at Leigh, has disposed of his interests and has moved to San Diego, Calif..

Charged with violating the Harrison narcotic act, Dr. W. H. Slattery, city physician of Lincoln, has been indicted by the Federal grand jury.

Dr. A. J. Stewart, Mitchell, was the victim of a railroad crossing accident the latter part of October. His injuries, while serious, are not alarming.

Dr. Joel Anderson, Gothenburg, has sold his residence and good will to Dr. H. M. Harvey of Burchard and will go east to take postgraduate work.

Dr. Peter Bassoe, professor of neurology, Rush Medical College, spoke before the Lancaster County Medical society on "Syphilis of the Central Nervous System", October 19.

The physicians of the Scottsbluff community indulged in a competative duck hunt and with the proceeds — the ducks — feasted the nurses of the Western Nebraska Methodist Hospital at a banquet at the institution, November 4th.

Before the Pre-Medic society of the University of Nebraska, Dr. A. R. Mitchell, Lincoln, spoke on the past, present and future of medicine, following the monthly dinner at the Grand Hotel, October 28.

Dr. H. W. Orr, Lincoln, attended the Western Surgical Association at Duluth, the Minnesota Orthopedic Association at Minneapolis and the Southern Minnesota Medical Association, at Mankato, during October, and appeared on the program at each meeting.

Nebraska surgeons attending the Clinical Congress at Montreal were Drs. C. D. Allenberger, C. D. Evans, W. S. Evans, C. H. Campbell, Columbus; Harry Everett, A. D. Munger, Lincoln; Harry Hapeman, Minden; Alfred Brown, J. P. Lord, D. T. Quigley, John A. Nilsson, H. C. Miller, Omaha.

Nebraska was well represented at the Inter-State Postgraduate Clinical Assembly at Cleveland. Among those seen there were Willis of McCook, James of Columbus, Martin of Red Cloud, Buchanan and Van Metre of Fremont, Hustead of Falls City, Benton of Central City, Riley, Sachs, Heagey, Niehaus, Keegan, McGuire, Wearne and Dunn of Omaha.

NECROLOGY

Adah Wiley Ralston, Omaha; Creighton University, College of Medicine, 1899; wife of John Ralston; member Nebraska State Medical Association; well known and able woman practitioner of Omaha for 25 years; active in women's welfare organizations; chief medical examiner of the Degree of Honor of Nebraska; died of organic heart disease, aged 60 years.

BOOK REVIEWS

FUNDAMENTALS OF DERMATOLOGY, by Alfred Schalek, M. D., Professor of Dermatology and Syphilology, University of Nebraska College of Medicine. Small octavo, cloth, 239 pages, 54 engravings, price $3.00; Lea and Febiger, Philadelphia, 1926.

Our own Dr. Schalek has produced a book that is just what the title indicates — the foundation of dermatological knowledge.

The main advantage and difficulty of writing this book must have been to be sure to include all essential fundamentals, omitting reading matter which would only puzzle the average physician. The second point in view must have been to enable the student and general practitioner to find the subject wanted in the quickest possible way without wading through a lot of literature. The third to supply illustrations of common skin diseases which represent but do not exaggerate them.

It must be more difficult to produce a book of this kind than a large volume where you have plenty of space and can indulge in saying all that is on your mind.

Space forbids much detail, but fairly representative of the book is the 14 pages devoted to a discussion of eczema in its various forms which alone is worth the price of the volume.

It is a handbook — it is a handy book to have on your desk for quick reference. It is in a class by itself; compact, any subject readily referred to and the kernel is there. Student and general practitioner, alike, will enjoy it.

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THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, January, 1926 No. 1

CALCREOSE

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TABLETS - SOLUTION

CALCREOSE (calcium creosotate)

is a loose chemical combination of creosote and calcium hydrate from which the creosote is liberated in the body. Because Calcreose can be given in fairly large quantities over long periods of time without apparently causing any gastric disturbance, it is of particular value as an adjunct in the treatment of various respiratory diseases.

In cases of idiosyncrasy

to creosote, small doses of Calcreose are recommended for the first two or three days, then gradually increase the dose.

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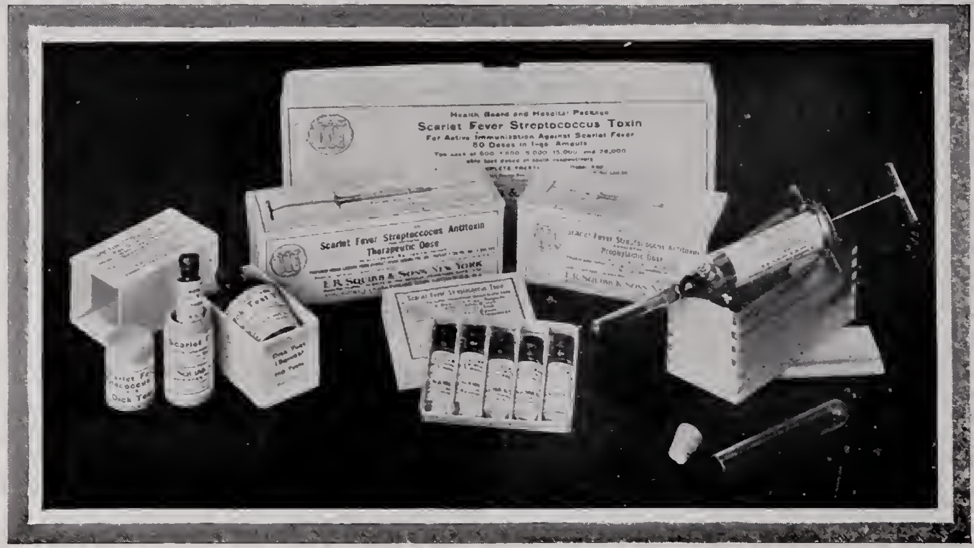
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ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, February, 1926 No. 2

CALCREOSE

In Treating Respiratory Diseases
REMEMBER

POWDER
TABLETS - SOLUTION

Creosote has long been considered an efficient remedy in the treatment of respiratory diseases. The difficulty with it has been to establish a tolerance in the individual and to avoid gastric-disturbance.

By administering Calcreose you will confer all of the benefits of creosote medication and largely eliminate the undesirable effects. Calcreose is a loosely combined product of creosote and hydrated calcium oxide from which the creosote is slowly eliminated in the body thus facilitating absorption.

Large doses can be given for long periods without apparent difficulty.

In cases of idiosyncrasy to creosote it is recommended that the initial dose of Calcreose be small during the first two or three days with gradual increase until tolerance is established.

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Scarlet Fever Toxin* and Scarlet Fever Antitoxin SQUIBB have been accepted by the Council on Pharmacy and Chemistry.

Every lot of SQUIBB Scarlet Fever Toxin* and Antitoxin is tested clinically and the dosage approved by the Scarlet Fever Committee, Inc., before distribution.

This control is in addition to that by the U. S. Public Health Service, and that by the Squibb Biological Laboratories.

This *Triple Control* insures products of absolute and maximum potency.

SQUIBB AUTHORIZED SCARLET FEVER PRODUCTS are accurately standardized, carefully tested, and dispensed in adequate dosage.

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MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858

ANNUAL MEETING, OMAHA, MAY 11, 12, 13, 1926

THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, March, 1926 No. 3

CALCREOSE

AT THIS SEASON of the year, when coughs, colds, bronchitis and other respiratory affections are prevalent, a reliable creosote product that is well tolerated and practically free from gastric disturbances is doubly welcome.

Calcreose confers all of the benefits of creosote medication with the undesirable effects largely eliminated. It is a loosely combined product of creosote (about 50%) and hydrated calcium oxide.

Calcreose can be given in large doses for long periods without apparent difficulty

In cases of idiosyncrasy to creosote it is recommended that the initial dose of Calcreose be small during the first two or three days with gradual increase until tolerance is established.

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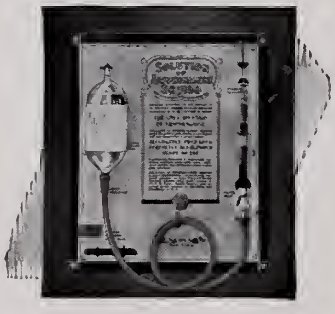

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ANNUAL MEETING, OMAHA, MAY 11, 12, 13, 1926

THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA ST[illegible]ICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, Ap[illegible]6 No. 4

CALCREOSE

Corrects the Faults of Creosote

In bronchial affections, especially acute and chronic bronchitis, in colds and in tuberculosis, creosote is a remedy of acknowledged value.

Calcreose — a loosely combined produc[illegible] of creosote and hydrated calcium oxide—largely overcom[illegible] the gastric disturbance usually associated with the [illegible]dministration of creosote. It is well tolerated, slowly abs[illegible]ed and combines the beneficial effects of creosote and lime.

Calcreose can be given in large doses for long periods without apparent difficulty.

Powder: Tablets: Solution **Samples of Tablets on Request**

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NEO-SILVOL appeals to discriminating physicians and is becoming increasingly popular with the profession for the reason that it is an effective germicide, does not cause irritation, and does not produce unsightly stains on the clothing or skin and mucous membrane.

Clinically, Neo-Silvol is very valuable in inflammatory infections of the eye, ear, nose and throat, in 10- to 25-per-cent solutions. In gonorrheal ophthalmia 25- to 50-per-cent solutions may be required.

In gonorrhea in the early stages solutions of 5 per cent of Neo-Silvol may be employed as injections. After the pain has subsided and the discharge has lessened, solutions of 10 to 25 per cent should be utilized. Urethral irrigations with a 1-per-cent solution of Neo-Silvol are preferred by many. Cystitis, especially of the acute type, occurring in little girls, may be treated with a few urethral injections of a 10-per-cent aqueous solution of Neo-Silvol. It is of value in vaginitis, cervicitis, etc., in 5- to 50-per-cent strength, depending on the severity of the condition. It may be tried in 1- to 3-per-cent solution for colonic irrigations.

Neo-Silvol is supplied in 1-ounce and 4-ounce bottles and in 6-grain capsules, 50 to the bottle. The contents of one capsule dissolved in a fluid drachm of water makes a 10-per-cent solution. An ointment of Neo-Silvol, 5%, in small collapsible tubes with elongated nozzle, and Vaginal Suppositories of Neo-Silvol, 5%, with a glycero-gelatin base in soft tin capsules in boxes of twelve, may also be had.

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ANNUAL MEETING, OMAHA, MAY 11, 12, 13, 1926

THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, May, 1926 No. 5

CALCREOSE

Creosote without its faults

Wherever creosote is indicated in the treatment of pulmonary inflammations, such as colds, bronchitis, and tuberculosis, Calcreose can be used to advantage.

This loosely combined product of creosote and hydrated calcium oxide largely overcomes the gastric disturbance associated with the administration of creosote alone.

Slow absorption, toleration by sensitive stomachs, and the therapeutic advantages of both creosote and lime combine to make Calcreose a most effective remedy.

Calcreose can be given in large doses for long periods without apparent difficulty.

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TENTH ANNIVERSARY NUMBER

THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, June, 1926 No. 6

CALCREOSE

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Eliminates Objections to Creosote

CREOSOTE has long been used as an intestinal antiseptic as well as for its effect on pulmonary inflammations such as influenza, bronchitis, and tuberculosis.

Calcreose eliminates the usual objections to creosote. It is a chemical combination of creosote and hydrated calcium oxide from which the creosote is slowly liberated, thus aiding absorption and toleration.

Calcreose can be given in large doses for long periods without apparent difficulty.

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This institution has its own brick and stone buildings situated in a park of 25 acres, permitting a complete classification of cases, and having every modern convenience.

THE MAIN BUILDING is thoroughly equipped for all noncontagious chronic diseases, with special attention being given to all metabolic diseases, including diabetes, with the insulin treatment. Special development in the laboratory and the diet kitchen makes the systematic and mathematical study and treatment of these diseases possible.

THE FIRE-PROOF ANNEX to the main building just completed, furnishes a modern and complete operating department, delivery department, nursery and examination quarters.

REST COTTAGE, in a distant part of the grounds, is for the reception of mental cases, requiring personal care and individual study. It is recognized that the mental case has a much better opportunity for restoration to health under conditions that permit of a thorough study of both psychic and bodily states.

We desire the profession to have a distinct understanding of the intent of this institution and that they may understand that it is operated entirely for their convenience and service.

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ANNUAL PROCEEDINGS NUMBER

THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, July, 1926 No. 7

CALCREOSE

IN

ENTERITIS

"CREOSOTE and guaiacol are used internally as intestinal and urinary antiseptics, as stimulant expectorants in bronchitis and in the treatment of tuberculosis. Their local irritant actions often interfere with their internal administration."
—N.N.R.1925, p.99

DURING the summer months intestinal antisepsis is particularly desired in connection with the treatment of various diseases of the intestinal tract.

CALCREOSE, being a loose chemical combination of equal parts of creosote and calcium oxide, is especially useful in this connection because it supplies all the benefits of creosote without the possible disturbances caused by creosote alone.

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Gastro-Intestinal Diagnosis and Ulcer of Stomach

THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, August, 1926 No. 8

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CONFIDENCE

THE confidence of the patient in his doctor is a great aid in restoring health.

But confidence is also a valuable asset in the business world. You would not deal with bankers, merchants or manufacturers whom you could not trust.

We, as manufacturers of pharmaceuticals realize fully the responsibility which rests upon us to provide preparations on which you can depend in a crisis.

Our aim is to continue to deserve your confidence and to this end we spare neither trouble nor expense in our manufacturing process.

THE MALTBIE CHEMICAL COMPANY
Newark, New Jersey

Manufacturers of CALCREOSE and Other Pharmaceutical Products

Our 215 page catalog will be mailed upon request.

A Suggestion to Professional Men

PROFESSIONAL men know that only years of training qualify one for his profession, and also that years of experience are necessary to produce good business judgment.

Your accumulation of years should be entrusted only to experienced hands.

The Trust Department of this company is directed by qualified men who will be glad to advise you without charge.

PETERS TRUST COMPANY
Farnam at Seventeenth

INSULIN SQUIBB

INSULIN is the active anti-diabetic principle of the Pancreas, and is the one and only anti-diabetic specific.

INSULIN SQUIBB, in common with other brands of Insulin, sold under whatever name in the United States, must conform to the standards and requirements established by the Insulin Committee of the University of Toronto.

INSULIN SQUIBB is accurately and uniformly potent, highly stable, and particularly free from pigmentary impurities. Moreover, Insulin Squibb has a very low content of nitrogen per unit, and a noteworthy freedom from reaction—producing proteins.

INSULIN SQUIBB is supplied in 5- and 10-cc. vials of the following strengths:—

5-cc.	10-cc.
50	100 units (10 units per cc.) — *Blue label*
100	200 units (20 units per cc.) — *Yellow label*
200	400 units (40 units per cc.) — *Red label*
	800 units (80 units per cc.) — *Green label*

Complete Information on Request.

E·R·SQUIBB & SONS, NEW YORK
MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858.

THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, September, 1926 No. 9

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BROWN COATED
TABLETS
Calcreose
4 Grains
Calcreose: A powder, containing approximately 50 per cent beechwood creosote in chemical combinations with calcium.
THE MALTBIE CHEMICAL CO
NEWARK, N.J.

Calcreose

FOR BRONCHITIS AND TUBERCULOSIS

Calcreose is particularly valuable in the stubborn bronchial coughs that frequently follow the colds of early Fall.

By loosely combining creosote with hydrated calcium oxide in the form of Calcreose it is possible to secure the benefits of relatively large doses of creosote with little or no gastric distress.

Calcreose represents about 50% creosote in tablet form. It is easily administered and is particularly suitable as an adjunct to other remedial measures.

Powder : Tablets : Solution

Samples of Tablets on Request

THE MALTBIE CHEMICAL COMPANY

NEWARK, N. J. : *Manufacturers of Pharmaceutical Products*

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Erysipelas Streptococcus Antitoxin
CONCENTRATED
Therapeutic Dose
E. R. SQUIBB & SONS, NEW YORK

Announcing—

Erysipelas Antitoxin

For the Treatment of Streptococcus Erysipelas

TO E. R. SQUIBB & SONS was issued on May 20th, 1926, the first license ever granted by the U. S. Public Health Service for the interstate sale of Erysipelas Streptococcus Antitoxin.

Erysipelas Antitoxin Squibb is prepared under license from the School of Medicine and Dentistry of the University of Rochester, New York, and is made according to the principles developed by DR. KONRAD E. BIRKHAUG of that University, and reported in the *Journal of the American Medical Association* for May 8, 1926, page 1411.

In addition to the tests made in the Squibb Biological Laboratories, samples of each lot of Erysipelas Antitoxin Squibb are submitted to the School of Medicine and Dentistry of the University of Rochester for approval before distribution.

Erysipelas Antitoxin Squibb is supplied in concentrated form only. It is dispensed only in syringes containing one average "Therapeutic Dose."

[*Write to our Professional Service Department for Further Information*]

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UPPER URINARY TRACT INFECTIONS

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Vol. XI. Norfolk, Nebraska, October, 1926 No. 10

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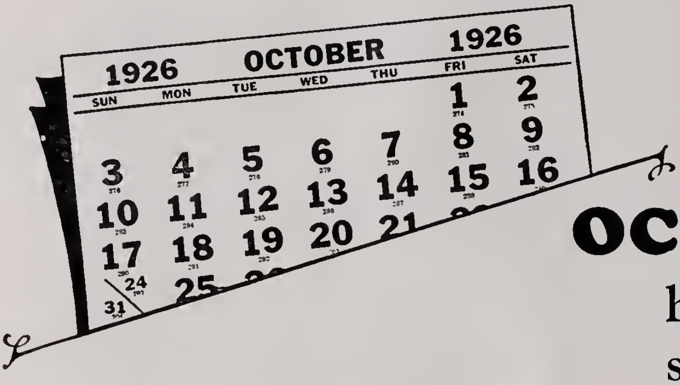
THE PREVENTION AND TREATMENT OF DIPHTHERIA



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has been
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for the beginning of a nation-wide campaign against Diphtheria

You will want dependable products for your use.

SQUIBB'S DIPHTHERIA TOXIN-ANTITOXIN MIXTURE.
Confers lasting active immunity to the disease.

SQUIBB'S DIPHTHERIA TOXIN FOR SCHICK TEST.
Permits of the limitation of immunizing injections of Toxin-Antitoxin to those who actually require the protection conferred by that product.

SQUIBB'S DIPHTHERIA ANTITOXIN.
Purified and concentrated by a new process resulting in extreme clarity, high concentration, low total solids and small volume.

SQUIBB DIPHTHERIA PRODUCTS are available in the following packages:—

SQUIBB'S DIPHTHERIA ANTITOXIN in syringes of 1000 units (for passive immunization), 3,000, 5,000, 10,000 and 20,000 units.

SQUIBB'S DIPHTHERIA TOXIN FOR SCHICK TEST in packages sufficient for 50 tests and 100 tests.

SQUIBB'S DIPHTHERIA TOXIN-ANTITOXIN in packages of 3 ampuls (one complete immunization), 30 ampuls (hospital package, 10 complete treatments), and in vials of 10, 20 and 30 cc.

Write to Professional Service Department for full information

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THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. XI. Norfolk, Nebraska, November, 1926 No. 11

100
BROWN COATED
TABLETS
Calcreose
4 Grains
Calcreose A powder containing approximately 50 per cent beechwood creosote in chemical combinations with calcium
THE MALTBIE CHEMICAL Co
NEWARK, N.J.

Dosage is Important

TO obtain the full benefit of creosote medication in tuberculosis and bronchitis the dose must be sufficiently large.

This is what makes Calcreose so valuable.

Calcreose practically eliminates the possible untoward effects of plain creosote thus making it possible to give large doses of this valuable drug over long periods of time and insuring therapeutic effect.

Whenever you want the stimulating expectorant effect of creosote use Calcreose.

CALCREOSE is a loose chemical combination of creosote and hydrated calcium oxide. It represents about 50% creosote in tablet form. It is easily administered and particularly suitable as an adjunct to other remedial measures.

POWDER ~ TABLETS ~ SOLUTION

Samples of tablets and catalogue on request

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Authorized

PRODUCTS

for the

PREVENTION & TREATMENT

of

SCARLET FEVER

E. R. SQUIBB & SONS were granted the first license to make and distribute SCARLET FEVER ANTITOXIN and SCARLET FEVER TOXIN under the Dick patent.

Scarlet Fever Toxin* an Scarlet Fever Antitoxin SQUIBB have been accepted by the Council on Pharmacy and Chemistry.

Every lot of SQUIBB Scarlet Fever Toxin* and Antitoxin is tested clinically and the dosage approved by the Scarlet Fever Committee, Inc., before distribution.

This control is in addition to that by the U. S. Public Health Service, and that by the Squibb Biological Laboratories.

This *Triple Control* insures products of absolute and maximum potency.

SQUIBB AUTHORIZED SCARLET FEVER PRODUCTS are accurately standardized, carefully tested, and dispensed in adequate dosage.

Specify Squibb *Authorized* Scarlet Fever Products.

[**SQUIBB'S was the first SCARLET FEVER TOXIN for the Dick Test and for immunization to be accepted by the Council.*]

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FOR FULL
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Scarlet Fever Streptococcus Toxin
Scarlet Fever Streptococcus Antitoxin
Therapeutic Dose
E. R. Squibb & Sons New York

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Vol. XI. Norfolk, Nebraska, December, 1926 No. 12

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IPRAL
a new hypnotic marketed by
SQUIBB

The Calcium Salt of Ethylisopropylbarbituric Acid
Accepted by the Council on Pharmacy and Chemistry A. M. A.

IPRAL SQUIBB approximates the ideal hypnotic because:

It is quickly soluble in water, hence quickly absorbed and rapid in action.

Its average effective dose is small (2 to 4 grains).

In therapeutic dose, it affects only the higher cerebral centers.

Its action on the heart is negligible when administered in therapeutic doses.

It is not habit-forming and it produces sleep which closely approximates the normal.

IPRAL is marketed as 2 grain tablets, in vials of ten and in bottles of one hundred.

{ *Write to Professional Service Department for Literature* }

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